DOCUMENT RESUME

ED 359 328 CE 063 426

AUTHOR Koehnen, Timothy, Ed.; Cristovao, Artur, Ed.
TITLE New Focuses on European Extension Education: The Issues. Proceedings of the European Seminar on Extension Education (10th, Vila Real, Portugal, September 1-9, 1991).
INSTITUTION Tras-os-Montes and Alto Douro Univ., Vila Real (Portugal).
PUB DATE 93
NOTE 320p.
PUB TYPE Collected Works - Conference Proceedings (021)

EDRS PRICE MF01/PC13 Plus Postage.
DESCRIPTORS Access to Education; Agricultural Education; Case Studies; Continuing Education; *Curriculum Development; Educational Innovation; Educational Needs; *Educational Practices; *Educational Strategies; Educational Trends; Extension Agents; *Extension Education; Farmers; Foreign Countries; Global Approach; Models; Postsecondary Education; Professional Training; *Program Development; Program Evaluation; Rural Development; *Rural Extension; Teaching Methods; Technology Transfer
IDENTIFIERS *Europe

ABSTRACT

This proceedings report is organized into four sections dealing respectively with: (1) global issues facing extension education; (2) extension strategies and methods; (3) extension planning and evaluation; and (4) training and curriculum development. The following papers are included: "Extension Science: To Broaden the Scope" (van Woerkum); "Agricultural Extension: Trends and Perspectives" (Siardos); "Knowledge of Agriculture" (Nitsch); "The Agricultural Knowledge Transformation Cycle" (Blum); "New Challenges for Extensionists: Targeting Complex Problems and Issues" (Dunn); "Ideal Types of Extension System: A Theoretical Framework for the Qualitative Analysis of Extension Organizations" (Sanchez de Puerta T.); "New Initiatives of Agricultural Extension Education in Central Europe as Exemplified by Poland" (Kuzma); "Low Farm Incomes in Ireland and Their Implications for Extension" (Phelan, Markey); "Extension Activities and Rural Development in Slovenia" (Suncic); "Organizational Properties: Manifestations of Different Models of Extension Work" (Hassanullah); "Agricultural Development and Modes of Professionalization of Extension Work: Some Reflections about the French Case" (Lemery); "The 'Reaching Problem' in Extension Education: A Dialogue Approach" (Heymann); "Farmers' Study Groups in the Netherlands" (Proost); "Technology Transfer in Small Scale Dryland Crop Production: Future Challenges" (Bembridge); "Extension and the Picture: Conclusions from a Semiotic Theory of Picture Communication" (Hoffmann); "Extension Alternatives to TOT and the Agricultural Knowledge Perspective: Reflections after the Bad Ball Workshop" (Salas, Tillmann); "Extension in Support of Agricultural Trade Implications for Europe 1992" (Youmans); "Strategic Planning for Extension Systems" (Ludwig); "Developing, Conducting, and Evaluating a Training Program for Professional Extension Educators at the American Farm School, Thessaloniki, Greece" (Crunkilton); "Farmers' Training in Portugal: A Contribution to Its Evaluation" (Cristovao, Figueira); "Rural Extension in Algarve, Southern

Portugal: An Evaluation Case Study" (Figueira, Ferreira, Cristovao); "Technology Transfer System in Turkey: Two Case Studies" (Ozkaya); "Programme Planning and Continuing Education for Farmers" (Nielsen, Hog, Bouet); "National Portuguese Survey: What Educational Competencies Are Rated Necessary for Extensionist by Directors of Agrarian Zones?" (Koehnen, Portela); "Relevancy of U.K. Graduate Education to Malawian Agricultural Professionals' Careers in Agricultural Development" (Trail); and "Designing and Implementing a Portuguese Master's Degree Program: A Luso-American Connection" (Koehnen, Cristovao). (MN)

****
*   Reproductions supplied by EDRS are the best that can be made   *
*   from the original document.   *
****

ED359328

European Seminar on Extension Education

10th ESEE

Universidade de Trás-os-Montes e Alto Douro
Vila Real, 1-9 Setembro 1991

New Focuses on European Extension Education: The Issues

Proceedings of the 10th European Seminar on Extension Education

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it
☐ Minor changes have been made to improve reproduction quality
- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
P Koehnen
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

CE063426

BEST COPY AVAILABLE

European Seminar on Extension Education
10th
Universidade de Trás-os-Montes e Alto Douro
Vila Real, 1–9 Setembro 1991

*Prepared by the
Universidade de Trás-os-Montes e Alto
Douro, Departamento de Economia e
Sociologia,*

*with the editorial assistance of
Timothy Koehnen and Artur Cristóvão*

New Focuses on European Extension Education: The Issues

Proceedings of the 10th European Seminar on Extension Education

Editor: UTAD
Sector Editorial dos SDE
Impressão e acabamento:
Serviços Gráficos da UTAD
Apartado 206
5001 Vila Real-Portugal-Codex

Autor Principal: *T. Koehnem, A. Cristóvão*
Assunto: "Extensão Educativa"
Título/Responsabilidade - UTAD
Depósito Legal: 1105
ISBN: 672-669-116-8
Tiragem: 200 exemplares
Ano - 1993

Universidade de Trás-os-Montes e Alto Douro

The University of Tras-os-Montes and Alto Douro was created in 1986, succeeding the University Institute with the same designation and the Polytechnic Institute of Vila Real, created in 1973 after a major reform in the higher educational system. It is a centre of learning and research and a major pole of development in the area.

UTAD is presently organised in three major scientific and pedagogical areas - Agricultural Sciences, Social Sciences and Humanities and Exact, Natural and Technological Sciences. Each of these areas includes a number of departments, presently a total of sixteen.

In terms of instruction, UTAD is now offering a total of 16 degree programs, involving a total of about 4000 students. Teaching activities take place in Vila Real, where the major campus and administration building are located, and in Chaves, where education courses are also offered.

The major undergraduate degrees offered are: Agronomy, Forestry, Animal Sciences, Veterinary Medicine, Enology, Agrarian Management, Teaching of Portuguese and English, Teaching of Portuguese and French, Teaching of English and German, Sports and Physical Education, Teaching of Biology and Geology, Teaching of Physics and Chemistry, Electronics (Computers and Instrumentation), Kindergarten Education and Basic Education.

UTAD also offers the preparatory courses for the degrees in Economics and Civil, Mechanical and Mining Engineering, through an agreement with the University of Porto. At the graduate, level only a Master's Degree in Extension and Rural Development is functioning. The University is also involved in teacher in-service training and continuing education activities.

Concerning research, UTAD is involved in numerous applied research projects, all of them with a strong regional emphasis, and most of them dealing with the agri-business sector. It should be stressed the participation of the University in major projects such as the Integrated Rural Development Project of Tras-os-Montes, with the responsibility of implementing the agricultural applied research programme. Just recently, UTAD obtained a major grant to launch the Institute of Agrarian Sciences and Technologies, which will be responsible for a strong research programme, involving multiple units, in collaboration with several institutions, and focusing on the agricultural and rural development issues of northern Portugal.

Having outreach or community service as an objective, UTAD has also developed a variety of activities to support a number of projects and institutions in the area, namely through seminars, conferences and short-courses. This task is supported by the University Departments and Services, including the Documentation and Extension Service (SDE) and the Regional Development Study Centre (CEDR). The SDE co-ordinates the audio-visual division and the publications sector, among others.

It must be stressed that UTAD has a policy which simulates the development of strong communications linkages with other institutions, both at the national and regional levels, in the academic, professional and policy making worlds. Also, UTAD takes pride in its ties with foreign universities, in the four corners of the world. It is worth mentioning the relationships with the Free University of Amsterdam and the Wageningen Agricultural University (Holland), Purdue University (USA), University Agostinho Neto (Angola), University of Osnabrück (Germany), the An Foras Taluntais Institute (Ireland), and the Montpellier Mediterranean Agronomic Institute (France).

Economics and Sociology Department

Overview

The Department of Economics and Sociology is one of the 16 UTAD Departments. Its faculty is composed of 25 elements, holding doctorate degrees and 7 M. Sc. degrees or equivalent. The background training of these 25 elements is quite diverse, from Economics and Sociology, to Agronomy, Animal Sciences, Veterinary Medicine, Management Science, History, Geography and Anthropology.

The Department is responsible for the teaching of over 50 different disciplines, which are part of the curriculum of several degrees, most of them in Agrarian Sciences. The department is highly involved in the development of new undergraduate degree (5 years of course work) in Agrarian Management (Gestão Agrária) as well as a new graduate degree in Extension and Rural Development.

Among the 50 disciplines are General Economics, Rural Economics, Sociology, Rural Sociology, Rural Extension, Farm Management, Accounting, Farm Planning, Agricultural Policy, Business Organisation, Marketing, Auditing, Agricultural Law and Administration Theory.

The Department is involved in several research projects, some of them involving European partnerships and EEC funding. Among the research topics are: Rural Economics in Mountain Zones; Farm-Household Strategies; Social and Economic Issues in Farmer-Managed Irrigation Systems; Women in Agricultural Development; Extension, Training and Information Systems for Agricultural and Rural Development.

Extension And Rural Development Training

The Universidade de Tras-os-Montes e Alto Douro (UTAD) has initiated the first Master's Degree in Extension and Rural Development Education in Portugal. The University is located in Vila Real which is in the northern region of Portugal. The degree program is housed within the Department of Economics and Sociology and has been financially assisted in the implementation through a grant from the Luso-American Development Foundation.

The Master's Degree involves three semesters of classwork with the fourth semester for student thesis work. The first semester of classes includes Extension Education Methods, Philosophy and Strategies of Extension, Planning and Evaluation, and Technology and Development I. The second semester consists of Economic and Sociological Aspects of Development, Administration and Supervision of Extension Programs, Communication and Development, and Technology and Development II. The third semester of classes incorporates Research Planning and Methodology with the introduction to Statistics and Micro-Computers. The research will be action oriented to assist in the identification and resolution of rural development problems.

The courses are taught by UTAD faculty, Visiting Portuguese Professors and Guest Professors from European Universities such as the University of Reading, University College of Swansea, the Agricultural University of Wageningen and others. The UTAD also has an important Luso-American component: through contacts with faculty from various land-grant institutions in the United States such as Illinois and Wisconsin. These contacts to external institutions have broadened the perspective and philosophy of rural development for our students as well as our own educational program. The program staff pride themselves on the interactive educational dialogue established with the students.

The students in the program are professionals within agricultural extension agencies, polytechnic agricultural institutes, farmer training centres, and other rural development organisations. In order to accommodate these professionals, the class schedule is part-time with classes concentrated within a two day period. The dynamic interaction of these rural development professionals creates an ideal teaching-learning environment as well as facilitating professional interaction within the group. The faculty are aware of the importance of this professional network within Portugal, but would like to expand this network by welcoming rural development professionals from outside Portugal. The UTAD would be especially interested in expanding the professional and educational linkages to Lusophone Africa.

Economics and Sociology Department

Postal address:
UTAD/DES, Apt. 120
5001 Vila Real Codex
Portugal
Telephone: +351.59.322545
Telefax: +351.59.74480
Telex: 24436 UTAD P

Table of Contents

Foreword

Extension Education: Global Issues

Extension Science: To Broaden the Scope
Cees van Woerkum 7
Agricultural Extension: Trends and Perspectives
George C. Siardos 13
Knowledge of Agriculture
Ulrich Nitsch 21
The Agricultural Knowledge Transformation Cycle
Abraham Blum 29
New Challenges For Extensionists: Targeting Complex Problems and Issues
A.M Dunn 43

Extension Strategies and Methods

Ideal Types of Extension System: A Theoretical Framework for the Qualitative Analysis of Extension Organizations
Fernando Sánchez de Puerta T. 61
New Initiatives of Agricultural Extension Education in Central Europe as Exemplified by Poland
Jozef Kuzma 97
Low Farm Incomes in Ireland and Their Implications for Extension
J. Phelan and A.P. Markey 105
Extension Activities and Rural Development in Slovenia
Franc Suncic 111
Organizational Properties: Manifestations of Different Models of Extension Work
M. Hassanullah 125
Agricultural Development and Modes of Professionalization of Extension Work: Some Reflections about the French Case
Bruno Lemery 143
The "Reaching Problem" in Extension Education: A Dialogue Approach
Fanny Heymann 151
Farmers' Study Groups in the Netherlands
Jet Proost 159
Technology Transfer in Small Scale Dryland Crop Production: Future Challenges.
T. J. Bembridge 171
Extension and the Picture: Conclusions from a Semiotic Theory of Picture Communication
Volker Hoffmann 187
Extension Alternatives to TOT and the Agricultural Knowledge Perspective Reflections after the Bad Ball Workshop
María A. Salas and Hermann J. Tillmann 205
Extension in Support of Agricultural Trade Implications for Europe 1992
David Youmans 211

Extension Planning and Evaluation

Strategic Planning for Extension Systems
Barbara G. Ludwig 217
Developing, Conducting, and Evaluating a Training Program for Professional Extension Educators at the American Farm School, Thessaloniki, Greece
John R. Crunkilton 229

Farmers' Training in Portugal: A Contribution to its Evaluation
Artur Cristóvão and Eduardo Figueira 247
Rural Extension in Algarve, Southern Portugal: An Evaluation Case Study
Eduardo Figueira, Anabela Ferreira and Artur Cristóvão 255
Technology Transfer System in Turkey: Two Case Studies
Tayfun Özkaya 267

Training and Curriculum Development

Programme Planning and Continuing Education for Farmers
Niels Fink Nielsen, Kirsten Hog and Kjeld Bouet 277
National Portuguese Survey: What Educational Competencies Are Rated Necessary for Extensionist by Directors of Agrarian Zones ?
Timothy L. Koehnen and José Portela 291
Relevancy of U.K. Graduate Education to Malawian Agricultural Professionals Careers in Agricultural Development
Thomas F. Trail 301
Designing and Implementing a Portuguese Master's Degree Program: A Luso-American Connection
Timothy L. Koehnen and Artur Cristóvão 309

Appendix 1: List of Participants 317
Appendix 2: Programme 323
Appendix 3: Excursion 327
Appendix 4: Supporting Institutions 329

Foreword

The 10th European Seminar on Extension Education (ESEE) occurred at the Univesidade de Trás-os-Montes e Alto Douro (UTAD) in Portugal, outside the original European group of institutions that initiated the first seminar. In the early history of the event, the European elements consisted of the following countries: 1º Finland, 2º Denmark, 3º Holland, 4º Ireland, 5º West Germany, 6º Italy, 7º Norway, 8º United Kingdom and 9º Sweden. At the 10th ESEE, we calculated that if we just look at the European participants from outside the Kellogg Foundation supported group, we had representation from Portugal, Spain, Switzerland, France, Poland, Slovenia, Greece, and even Turkey. One of the challenges was to expand the participants from non-traditional countries such as Eastern and Southern Europe.

In some sense, the 10th ESEE might have overextended or overstepped the original mandate or consensus for a focused European seminar when you consider the paper presentations from North America, Asia, Africa and a quasi participation of Oceania. But, when we look at the diversity and quality of the papers, a positive aspect can be voiced for our flexibility in this point by the contributions of the 8 papers outside of Europe.

The 24 presentations sketch a global perspective of extension education. Some of the themes included extension philosophy and organisation, pre and in-service extension training, farmer training programs, extension issues and concerns - just to name a few within a quick synopsis of the event. The presenters and participants are to be congratulated for their efforts in the success of these proceedings.

In closing, the contributions of the presenters and those involved in the planning, organisation and implementation of these proceedings are acknowledge by our heart felt appreciation. We need to especially recognise the computer skills of Pedro Ferrão who facilitated the printing of this work and in the overall design. The women of our secretarial staff who played an unending service in the completion of these proceedings are Eliana Barros, Manuela Mourão, Adelaide Ribeiro and Teresa Batista.

We hope the proceedings will contribute to the continued debate concerning extension education in Europe. A debate, where there is lively and spirited interaction, and we believe will occur at the 11th European Seminar on Extension Education at Denmark.

Extension Education: Global Issues

Extension Science: To Broaden the Scope

Cees van Woerkum

Many extensionists are still use to looking at the farmer as a person who has to survive in a physical and natural world. A farmer has to combine seeds with soil, pasture with animals, water with crops. Of course, sometimes he/she has to sell something. They have to deal with a market, and this can be a bother for them. But generally speaking, a farmer is a man in a natural environment, striving for a high yield.

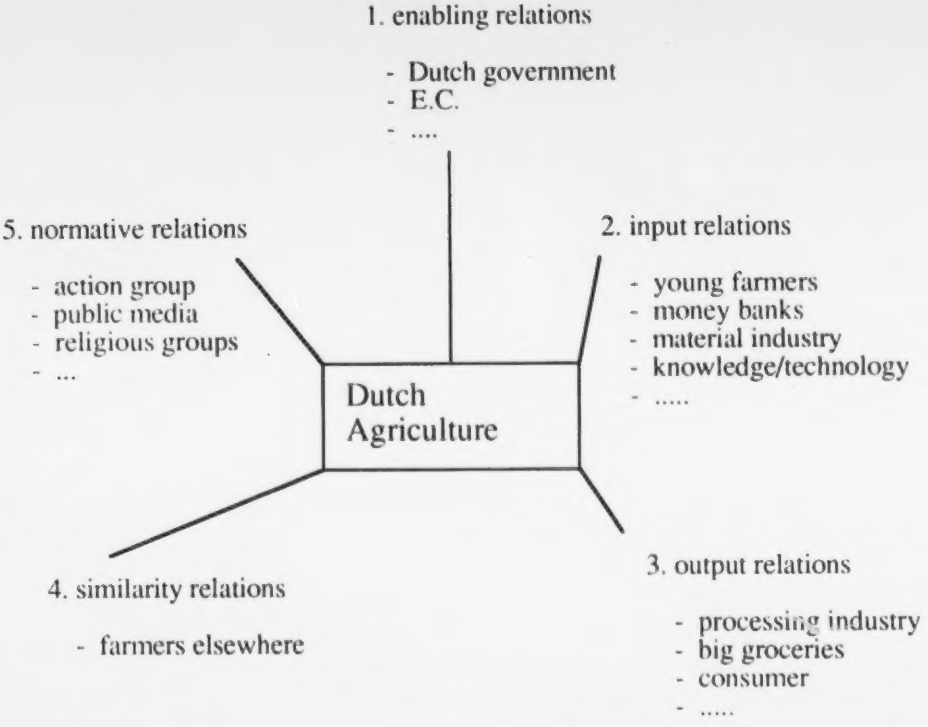
This environment is not always very predictable. Rain can fall, or not. It can be cold or warm. Sometimes, there is a late frost in April, and all fruit trees are affected. Or a nasty insect penetrates in his crops and causes a lot of damage. But this is a type of uncertainty a farmer is use to dealing with. That is what intrinsically belongs to the life of a farmer; from generation to generation.

However, nowadays this picture of the situation is far from realistic. We see new dependencies, going much further than the natural environment, and even much further than the market. These new dependencies increase the unpredictability of the environment, considerably. The farmer has to form a new attitude towards this new environment, consisting mainly of human factors: what do the different actors outside the world of agriculture want and expect. I will give you a picture of this new environment later on. My thesis is that this enlargement of the environment of a farmer creates new information needs, and that we as extension scientists have to study how extension can meet these new information needs. We therefore go beyond the scope of a classical extension service, and have to talk about information or communication in general. And we have to talk about different types of communication: (l) communication directed at the delivery of information to the people who ask for it (informational communication), (2) communication directed to the enhancement of the decision making capacity (educational communication) but also (3) communication to influence attitudes, to promote a willingness to change (persuasive communication). As I will show, this willingness to change is absolutely necessary to Dutch agriculture. It stems from the dependencies that come out of this new environment.

The New Environment of Farmers

I will present a model that depicts the dependencies of the new environment. In doing this, I would like to stress the different types of dependencies. This is more an abstract way of analysing the environment than what we can see in so called actor-models, in which a farmer has to look at other farmers, the government, pressure groups outside agriculture and so on. I am not sure such a scientific and complex model is always more usable or promising. Difficult ideas aren't deep insights. But let me try to explain the situation.

Schematic 1: The Environment of Dutch Agriculture:


1. enabling relations
- Dutch government
- E.C.
- ....
5. normative relations
- action group
- public media
- religious groups
- ...
2. input relations
- young farmers
- money banks
- material industry
- knowledge/technology
- .....
Dutch Agriculture
4. similarity relations
- farmers elsewhere
3. output relations
- processing industry
- big groceries
- consumer
- .....

Let me describe the five main relations and say something about the new uncertainties that spring from them.

Enabling Relations

Certain forces outside agriculture can be very decisive on the question if there could be any agricultural activity in a given area and what kind of activity this could be. Also, by very drastic interventions on the financial level they can really determine the existence of farming.

In the Netherlands the local, provincial and central government are more and more prone to define the kind of agricultural activity that is allowed in a given area. Every inch has a destination in a small country like ours. And the criteria are getting more and more precise, mainly because of environmental reasons. The government, but even stronger the E.C. have tremendous influence on the ability to survive in certain sectors of agriculture, e.g. arable farming.

These tendencies create a lot of uncertainty, misunderstandings and emotional reactions. Many farmers would like to know what their situation is with regard to these questions in the future, say in the year 2000. But nobody can or will tell them. They have relatively speaking little opportunities to influence these decisions by the government or the E.C. Anyway, here is a big need for information.

Input Relations

Here, we see several possibilities. Farmers must be willing to go into agriculture. The number of young people in agriculture education is dropping, but perhaps not stronger than the jobs that are available in agriculture in the future. Money can be another problem. Farmers need money to invest in additional acres, or in new buildings. They need the material to grow crops (seeds or fertilisers) or to breed pigs. And they certainly need knowledge and technology.

As the traditional agricultural model is under severe attack, for economical and/or ecological reasons, farmers are forced to look at alternative practices. Generally speaking, they have to change from well known practices to practices that involve risks. This creates uncertainty and the need to reduce it by information.

Output Relations

The main factor here is the market. Consumers are changing their preferences. They are more critical about the quality of food, for instance the residues of pesticides, and about the process by which this food has been produced. Chickens and pigs need in their eyes a certain amount of space to move around. An egg is no longer an egg. Consumers have to make choices. Big grocery companies are very conscious about their image, "are they green enough?" and offer the consumer new "green" products, of course with a higher price. Agriculture has to produce them, according to strict norms, set by the industry.

Nobody knows how strong or how lasting this green revolution in the food market will be. Successes are followed by failures. Yet, we have to think about probable long term developments. So, we need information and advice.

Similarity Relations

In Russia new boundaries are created. In Western Europe boundaries are pulled down. Economically as well as politically a Dutch farmer has to regard his/her position vis a vis his/her colleagues elsewhere. In many respects this fellow farmer is a partner, especially on the political field in the domain of the E.C. Of course he/she is also a competitor, whose decisions can affect the economic position of the Dutch farmer considerably. They all operate in one big market. The opportunities for Dutch agriculture depend on its positioning amidst other countries. Dutch farmers can profit from certain advantages, mainly by investing in a lot of knowledge and technology. But this presumes a good understanding about what is going on in other countries.

Normative Relations

A few weeks ago experimental crops in which the researchers tried to test the possibilities of bio-technological innovations were completely damaged by action groups. Several new agricultural developments evoke very emotional resistance by action groups or by religious groups. There is a lot of publicity about these actions in our public media. The manipulation of genetic material, the physical well being of animals or the spoiling of ground (and drinking) water is under severe attack.

Dutch agriculture can't deny these critical voices and has to deal with them. So, they must think about them in order to react in a sensible way. Farmers have to be informed about the background of all these opinions. Sometimes they have to be persuaded that non-farmers can have legitimate opinions about what they are doing.

If we look at these dependencies we have to conclude that they are very real and powerful. Furthermore, these dependencies are heterogeneous and complex. Of course, they interfere. Certain tendencies are reinforced by background problems like the ecological problem or by the questions about the quality of food. Together they create a big need for communication, on a scale that can't be dealt with by existing communication channels. Let me make this point clear.

The Performance of Existing Communication Channels

All kinds of sources are trying to inform, educate or persuade farmers. A detailed analysis of the Dutch system will bring out that new initiatives have been taken, that fit the new situation. For instance, there was the birth of a daily journal, only for farmers, that is read by at least 20% of the agricultural population. It is a very "open" journal, that offers the reader a variety of often conflicting opinions, and much information about the extended environment, for instance about the public debate on subjects like "acid rain" or the well-being of animals. Other examples are the increasing influence of information technology or the paid private advice-agency. They have to reduce the uncertainties of new crops, or new methods of animal breeding. We see a new, partly privatised extension service, with a high consciousness on quality, and market-oriented. The change of the environment has indeed created a change in communication channels. And farmers are responding to this. Farmers are spending more time and money to keep in touch with these dependencies, with their big uncertainties. By using new possibilities in communication.

Is everything fantastic and OK? Not really. It is my assumption that the communication system is staying behind the ongoing developments, notwithstanding the changes that I have mentioned. It is not difficult to formulate assumptions, but how can we study this problem, if there is a problem?

Some researchers think they can establish a criterion out of the subjective information needs of farmers that can be scanned. If the farmer is happy, the communicative system is all right.

I don't think such an approach is solving the problem. For one thing, many farmers aren't able to analyse the main trends in this new, expanded environment and the interdependencies between them. So, they can't tell us what kind of information is lacking. Such an analysis is difficult, even for very well trained agricultural scientists or politicians. Secondly, clients always respond to existing patterns of information. For them, it is difficult to imagine information outside the messages they already receive. Their perception is biased by

15

what they can perceive. Therefore, we have to look also at another criterion. I believe we cannot avoid the vision of experts concerning the new environment, and we have to analyse the difference between what should be known, compared with what is told.

Of course, there isn't something like a preferable vision. Although we can use data from different sources, we have to interpret them and we have to make estimations, with subjective elements, to reduce our uncertainties. Because of this, there are many visions. Yet, there is a great deal of common-sense among experts. The Dutch agricultural system has to change itself considerably. Farmers must produce food that can meet higher quality standards, this food has to be produced under conditions that are more friendly for the environment and farmers must use high inputs of knowledge and technology in order to compete with farmers elsewhere.

I would like to restrict myself to one example: the environmental question. If we study the gaps between what is needed and what is done in the field of communication, we can formulate a lot of hypotheses that make sense. One thing that especially bothers me is the objective need for change, from the demands of the market, from normative considerations or from governmental requirements, that put forward very strict standards on the use of pesticides and so on, and the communication about these environmental subjects. In this field the communication system isn't working properly. If we look at the communication from the government, we have to keep in mind that the change that is needed is a change that takes time.

1) Farmers have to understand how serious the situation is, regarding acid rain or the pollution of drinking water.
2) They have to accept that governmental intervention is necessary.
3) They have to accept the main policy goals.
4) They have to accept the concrete measures as just and legitimate. Just, in the sense, that the measures are accepted as effective, by which the problem really can be solved, and just, meaning; applicable to real-life situations on the farm. Legitimate, in the sense that farmers accept that they don't get a burden that is too heavy, compared with others.

This type of communication requires long term planning with different phases, and different messages in each phase alongside the policy process. At the moment, we see too few attempts to organise the communication according to such a plan. Too often, the government is quiet, till the moment the measures are there, and are approved by our parliament. Mostly, it is too late then to gain acceptance. I think, this insufficient communication stimulates a lot of anti-information and hinders the change that is necessary.

Of course, the government isn't the only communicator. The same changes are needed from the viewpoint of consumers and the retail grocery industry. Many leading agricultural scientists think these changes are inevitable. The needed communication, however, is lacking, also from other communicators. The extension organisations for instance, are in my opinion moving too slow in their role as change agent. How can we explain this reluctance to deal with this task? I would like to mention two things:

- first, the message is often problematic. Most often, the change that is asked for is big and drastic. Organisations don't like to burn their fingers. Their image is at stake. We see a lack of courage. Organisations look at other organisations and wait; who will tell the message? Who will tell all these farmers that there isn't any future for them in agriculture, unless they are willing to take big risks?
- secondly, there is little experience with this type of communication. Persuasive communication, based on good argumentation and aiming at the elaboration of messages that are difficult to accept, is a new type of extension. Many extensionists have emotional problems with it, and in spite of my conviction such an approach can (and must) be very rationalistic and based on evidence. They have grown up in a situation where the environment of farmers was rather unproblematic, and the direction in which agriculture moved was without much criticism. Now the situation is different. There is a lot of tension from outside and change is necessary. Many farmers are aware of this. Unfortunately many others are not. If they wait as long as they can, with a negative and defensive attitude, till the forces of the market or legislation take their course, it will be too late for them.

Conclusion

I think the new environment of agriculture forces extension science to look at the communication system as a whole in an extended environment in which other forces, economic and political play a big role. In order to provoke the changes that are needed we have to operate from a vision of what has to be done. Persuasive communication, aiming at the elaboration of issue-relevant information, has to be a part of the job. Extension workers as well as other communicators in the field, have to be trained to convince farmers that they can only survive if they change existing attitudes and practices. The arguments are available. We know the problems and at least a part of the solution. The farmers themselves have to decide on that, of course. For us as extension scientists this means also that old and new theories about social change and the place of communication in the process of change are again very topical. We have to broaden our scope and study them.

Agricultural Extension: Trends and Perspectives

George C. Siardos

There is a slogan in agricultural extension: "Have a good message for those it is to be disseminated for and be sure that they will make efficient use of it". Extensionists and other change agents in rural areas usually attempt, through communication, to change farmers´ behaviour so that they will accept new ideas, practices, innovations and agricultural technology. They usually transfer technical information to a system where farmers are free to get it and adopt or reject the recommended advice. Many agents act in this way because they believe that message development and knowledge reception is a matter of a cognitive function. Moreover, they measure a farmers´ success in terms of their efficiency (by doing things right) regardless of whether the manner has been effective for them or not.

The barrage of messages from various sources, often conflicting with each other, and instead of simplifying the process of communication very often causes a great deal of confusion. The contradictory reactions by the farmers is to either reject messages on the whole, or select those messages that do not fit their farming conditions, but which were tested and applied on research stations or in agricultural areas alien to theirs.

Finally, it is often said that at one end we have Agricultural Services with many Directorates and Sections as well as Agricultural Universities with Schools and Departments; and at the other end, there are farmers' problems. However, the correlation between the two is almost statistically null.

Agricultural Extension Weakness

A great many drawbacks have been identified in agriculture development in the case of many European developing countries regarding the rates of technology integration and the rapid pace of rural development.

These drawbacks determine the nature of contemporary and future problems that are not simple and/or technical, but rather complex and especially structural, since they are connected to a number of interactive socio-economic, cultural and psychological factors.

Public agricultural agencies, acting under the constraining system of governmental policies and within the framework of international organisations, pursue specific goals without paying special attention to how many and which of the farmers are intended to be reached by these external goals, provided that they increase incomes globally. On the other hand, private agricultural companies' policies, often irrelevant to the public one, and mostly unfamiliar with particular rural conditions, usually try to inform and convince farmers to accept ideas which are not often rationally feasible, economically accessible, and/or socially acceptable. Change agents are not in the position to recognise the plethora and the sequences of the influences that intervene between the time a farmer is informed about a new innovation and the time they will decide to apply it. The problem becomes more acute due to 1) the looseness of organisational links in public agricultural services' network, 2) the bureaucratic mechanisms which constrain their performances, 3) the responsibilities external to the extension process, 4) the ill functioning processes in relation to incentives, 5) the administrative and managerial staff deficiencies, and 6) the lack of co-operation among extension organisations and their actions in co-ordination.

These weaknesses may be found in a great number of public agricultural agencies in Greece (agricultural bank, agricultural co-operatives and associations, etc.), with each of these institutions trying to secure the promotion of its own policy. Thus, for example, agricultural co-operatives rarely work together with extension, with research institutes or with the private commercial firms, while institutions with the responsibility for extension education rarely draw up plans jointly. The local agricultural associations waste much of their time by devoting their energy to political juxtapositions and disputes rather than trying, through their intervention, to solve the problems of farmers. Adult educators, although they attempt to reach to all farmers, are not accessible to the majority of them. In addition, the training programmes are usually restricted to technical subjects concerning the immediate or short-term solutions of problems. The same shortcomings in the communication process have already been noted by Rogers, (1969, pp 190) who reported the following:

a) frequent lack of co-ordination between organisations responsible for research, extension and change agents' training;
b) lack of co-operation between different agencies working with the same peasant clients;
c) ineffective vertical communication within change agencies;
d) inadequate numbers of extension workers.

All the above mentioned points constitute one side of the coin. As the agricultural economic crisis continues, farmers confront the problem of over-production and the stockpiling of surplus food, the problem of diminishing land returns and an economic deadlock. Over and above these factors soil deterioration (due to the use of fertilisers, insecticides, herbicides and pesticides, and to the specialisation of one or only a few crops and not maintaining soil structure), pollution of surface water, poisoning of wildlife with insecticides, depletion of flora with herbicides, destruction of biotypes, the contribution to acid rain through the production of ammonia, permanent poisoning of grazing lands with copper, etc.

Agents who transfer information to farmers have already received this message from the farmer: "We need your assistance but not the kind you offer to us". Yet, apparently agents have not responded to this call. Probably they do not know how to deal with it, because they have not seriously coped with a situation of informing farmers on how to make decisions in a different way, so as to keep in balance the socio-economic as well as the ecological environment. They are focusing attention on "what the things are" and not "why the things are".

For the small and non-professional farmers, who constitute the majority of rural population, the agents' policy does not seem to be discriminated. It has still not been realised by policy makers and extension workers that marginal farmers and groups of rural people (landless producers, rural women and young people) are those groups that need special attention.

The Role of Extension in Transferring Technologies

There is a slogan in Greece which is very often used by technocrats and especially by politicians. They speak about the "train of technology" and they advise people to increase their pace to catch this train in order to improve their lives. Unfortunately, they regard agricultural technology as a panacea able by itself to promote agricultural development even rural development. In addition, they usually forget or ignore those who are unable to make efficient use of technology in order to fulfil their own objectives.

Farmers are seen as "users" and not as active problem solvers in their own right. Emphasis is given on the flow of knowledge and information instead of transformation and integration of knowledge. The integrity of technology is assumed to be an unchangeable product, while the evidence shows that technology is usually adapted and transformed as it moves through the system or diffuses among farmers.

Attention to transferring and utilising technology as a means of improving farm output seems to be increasing in developing countries, even in developing regions of developed countries. Yet, technology generation and transfer do not occur in a vacuum. They fit into the development policy of the home country. They constitute a part of a national plan which directs national resources, prioritises needs and sets goals to be achieved in the future.

Efficient technology does not guarantee effectiveness in modifying farmers´ behaviour. On the contrary, its adoption rate is closely related to the amount of farmers' involvement in determining programme objectives. In fact, extension services gradually abandoned the notion "have technology, look for users" and adopted the notion "have users, look for technologies from which they can benefit" (I.C.R.E., 1985).

All of you might agree that extension should be involved in a two-way process of transmitting problem solving information to farmers and information to farmers' problems back to agricultural researchers. However, it proves difficult to translate this theoretical conviction into actual practice, since decisions of farmers are not subject to manipulation. Among the conditions that affect the rate of agricultural development are the incentives that push farmers to certain directions. Farmers must know how to follow the recommendation, but primarily they must want to change and must be capable of accomplishing the change (Galjart, 1971). In general, the more favourable the conditions and the more certain they are of the results, the more readily technology can be transferred and utilised.

Hence, alternative approaches might have agricultural researchers becoming directly involved in identifying farmers´ problems and then working to solve them through a Farming Systems Research and Extension (FSR/E) approach or through a problem solving approach. Under these circumstances, potential solutions to problems could be considered by an integrated team involving farmers, researchers and extension specialists to formulate recommendations that would be disseminated by extension and utilised by farmers. These approaches not only do facilitate a "client centred" orientation on the part of extension, but demand it for success.

The point is worth repeating: Farmers must be free to accept or reject new technology or knowledge, and hence they must be considered as gatekeepers in agricultural and rural development.

In this respect, vocational agricultural training has a major role to play. It will not be confined to technical subjects but it will be equipped to provide farmers with all necessary information related to critical features of the development process such as analysis of economic situation and resource management, exploitation of alternatives (i.e. rearrangement of expenditure, rationality of investments, reduction in cost of production, off farm employment, etc.), marketing, agro-industry linkages, and income generation, as examples. The development and use of computers is bound to offer farmers the capability for effective farm management. Conclusively, education that helps farmers to identify and solve problems, to gain confidence in their skills and in the plans of government, and to gain freedom in decision making processes will be more effective in the long run than simply using extension as a distributive mechanism for research results.

Extension as an Instrument of Agricultural Policy

It is not easy to know exactly when and how to deploy extension as one of the elements in the development mix. Extension can usually only play a limited role. It can create awareness of new attractive possibilities; it can change the attractiveness of new possibilities by creating greater insight into its benefits; it can teach people how to apply or use new ideas; it can provide more basic background knowledge so as to improve the peoples' managerial capacity; it can help people evaluate their own situation, consider the options and make beneficial decision.

But it cannot motivate people to do something they do not like or brainwash them into doing things they do not want to do. Unfortunately, extensionists always assume that the conditions for changing farmers' behaviour are present. Instead, the evidence shows that where opportunities do not exist, extension is a waste of time.

The role of extension varies according to the policy objectives of the Ministry of Agriculture and the state's agricultural policy. If policy goals emphasise extraction, which is anathema to the farmers strategies, extension is especially inappropriate, since, as an instrument it is geared to inform and convince, rather than to force people to do what they do not want to do. As opposed to this, when the policy goals emphasise human resource development and enable rural people to reach their own objectives, extension becomes of great importance in mobilising people, organising them into groups (co-operatives, associations, etc.), increasing farmers participation and feedback into extension programmes, helping them to set priorities, helping them to develop plans of action, creating access to facilities and resources, helping them to implement their plans, and so on.

Yet, to reach their objectives, realistic new opportunities available for the farmers need to exist. This is translated into a mix of elements provided to farmers through planning and organisation. A checklist of some elements, at a grassroots level, as cited by Mosher, (1966), are:

1. Improved technology
2. Adequate markets
3. Access to adequate transport
4. Sufficient incentives for motivating farmers to innovate
5. Improved agricultural land through irrigation and other appropriate means
6. Educational and training agricultural programmes.

Conclusion

The existence of a strong, modern and flexible mechanism of Extension Service is a major factor in rural development. in Greece, where one out of four economically active persons is engaged in agriculture and where one out of six drachmas of national income comes from agricultural sector. There is a vital need for a dynamic mechanism of extension to be performed; a mechanism capable of meeting the increased demands in agriculture combined with socio-economic problems and strong competitions in the E.E.C. member states.

We are already well into an information age. with the increase in the relative importance of information, to quote Dillman (1986), there are several needs for extension: (1) extension educators learning with clientele rather than being their teacher, (2) overcoming information overload by getting information to clients when they need it, (3) adapting information to local conditions, (4) helping both the economically productive sector that has access to technology and helping those without resources to acquire and use new technology, and (5) making sure the extension educator is a knowledgeable and trusted consultant. Meeting these challenges of the information age will require attention to the values and beliefs that guide extensionists as they work to provide their clients with information and help them solve problems.

The educational needs of farmers cannot be satisfied with measures covering technical subjects of general issues. Having in mind the international financial crisis, the structural unemployment, the increasing number of aged and, finally, the bulk of social costs, a specialised socio-economic information for rural people is necessary.

Extension needs to promote deeper examination of values and beliefs to meet the challenges of the coming years. With the amazing developments resulting from science, and the amount of new information and technology available for processing information, extensionists need to refine their skills in several areas, such as problem analysis, needs assessment, objectives analysis, target categories identification, sociology of development, etc.

Since it is believed that those who control information exercise considerable power over society, an important role of the extension educator is to help clients become critically aware of all forms of information they receive, and learn to process the information to make it their own knowledge (Jimmerson, 1989).

Extension must help its clientele decide what they want their future to be. It means that we, as extensionists, must choose with them some end we shall promote. We must always be ready to confront challenges of making affirmative action real and meaningful. Extension will not be able to operate separately and distinctly from other elements and components in the future. Hence, improving the quality of extension personnel through formal education and in-service training activities is essential to conducting effective extension programmes.

While extension historically has concentrated on doing things right, the 1990's issues will require doing the right things right, at the right time, and in the right place (Meier, 1989).

Extension is an indispensable tool to achieve rural development. It must be encouraged to pursue scholarly and scientific inquiry coupled with applied problem solving, teaching, and research endeavours. Issues programming will require genuine interdisciplinary effort in an environment that fosters integrated team building and collaborative problem-solving approaches. This means an interactive dynamism, a synergy of all elements within a technology/knowledge system.

It is high time we stopped considering the creation of problems as a factor of the farmer and quit laying the blame on him or her. We must think about our inability to predict and interpret trends, and to develop the proper socio-political measures and strategies that could benefit the utilisation of science and technology. Extension would in these circumstances focus on helping farmers to be better information managers and decision makers.

The challenge in the decades ahead is to make extension services more widely available especially to the vast majority of low-resource farmers, by improving their capability and providing appropriate technology for a broad-based agricultural development (INTERPAKS, 1991) .

References

DILLMAN, D. A. (1986). Cooperative extension at the beginning of the 21st ventury, The Rural Sociologist VI:102-119.

GALJART, B.F. (1971). Agricultural development and sociological concepts: A critique, Rural Sociology 36:31-41, lg71.

I.C.R.E. (International Course on Rural Extenslon). (1985). Knowledge transformation and Utilization, Workshop, The Netherlands.

INTERPAKS INTERCHANCE. (1991). World experts assess agricultural extension, 8:1-2.

JiIMMERSSON, R. M. (1989). What values will guide extension's future?, Journal of Extension, 27:16-18.

MEIER, H. A. (1989). Extension trends and directions: historical patterns with future necessary changes, Journal of Extension, 27 - 13.

MOSHER, A.T. (1966). Getting agricultural moving, New York: Agricultural Development Council.

ROGERS, E. (1969). Modernization among peasants-the impact of communication. Toronto: Holt, Rinehart and Winston.

Knowledge of Agriculture

Paper presented at the Rural Sociological Society Meeting in Columbus, Ohio; August 17-21, 1991

Ulrich Nitsch

Environmental pollution, impoverishment of biological diversity, depletion of natural resources, chemical residues in food, surplus production, animal welfare, depopulation of rural areas and degradation of the quality of rural life are some of the issues and problems related to modern agriculture being focused on today in Sweden and in other industrialised countries. These issues and problems have evolved and grown worse during a period when the agricultural advisory service was busy disseminating technological information among farmers. Therefore, the present situation in agriculture raises two important questions: Did the advisory service fail its mission? What is an appropriate role for the advisory service today?

In this paper I will explore the latter of these two questions, i.e. the role of the agricultural advisory service in our present society. I will do this by discussing three functions of information on agricultural production: 1. Technology transfer, 2. Farm management advice and 3. The public interest.

Technology Transfer

Public agricultural advisory services in Sweden gradually developed in the early 1900's. Their primary aim was the diffusion of technological information to farmers to improve their production practices. This transfer of technology approach might well have been very useful and appropriate at the time when the services were first initiated. Today, I think it should be abandoned.

My reason for this suggestion is summarised in Table 1. In this table, I have outlined and compared the preconditions for advisory work in the early 1900's and today, with regard to the changing conditions in agricultural production and in the production, diffusion and utilisation of knowledge in the agricultural sector In the early 1900´s, farmers had little exposure to technological information. New technology was relatively simple and applicable on most farms Today these conditions no longer prevail. Today, information on new technology is distributed in large amounts to the farmers. And new farm technology is no longer generally applicable. Farmers do not primarily need access to more information. Instead, they need help in searching and selecting what is relevant to them.

There will still be a need to disseminate technological information to make it available for its potential users. But mere information dissemination can no longer serve as a rationale for a public advisory service. This function is now taken care of by commercial interests, for instance by manufacturers and farm commodity dealers. Also research institutions have an obligation to make their knowledge available to larger audiences. They do so mainly by distributing printed materials and establishing computer based information systems, for instance data bases in different subject matters or fields of production.

Table 1. The Changing Preconditions for the Agricultural Advisory Service

Early 1990's	Present Situation
A major part of the Swedish population was occupied in agriculture	A minority of the Swedish population (less than 3 %) is occupied in agriculture.
Farmers had little formal education	Farmers have more formal education
Farmers had limited exposure to information on new technology	Farmers are exposed to an overload of technological information from numerous sources
Limited development of scientific knowledge in agriculture	Abundant production of increasingly sophisticated scientific knowledge in agriculture
Agricultural technology was simple and did not require high capital investments	Agricultural technology is increasingly complicated and capital intensive
A majority of farms shared the same patterns of production	Patterns of production and type of technology frequently vary between farms
New knowledge on agricultural technology was relevant and applicable on most farms	New knowledge on agricultural technology must be carefully selected and adapted to the unique conditions on each farm
Increasing agricultural productivity was a strong concern for society	Increasing agricultural productivity is not a societal concern

However, such means of information dissemination and information delivery should not be confused with advisory work. Information dissemination and delivery starts with the information in search of its users. Advisory work should operate the other way around. It should start with the farmer in a situation.

I will further explore the difference between information delivery and advisory work in the next section of my paper. For now it may be sufficient to note that farmers today are exposed to an overload of technological information. Simply more information is no remedy or solution to this problem. A general characteristic of our present information society is that information may just as well cause stress and confusion as it contributes to enlightenment. A Finnish author, Henrik Tikkanen, describes this paradoxical condition in the following sentences:

> ***"I have lots of information I just need to know which I can trust.***
> ***That I need information on.***
>
> ***"I have all information. Now I just want to know what it's all about"***

This is where advisory services could and should make a contribution. It should assist farmers in exploring and clarifying their farming situation and in selecting, information that is relevant to them.

Farm Management Advice

Today, farmers' management skills play a decisive role for their survival and success in farming. Thus, the advisory service should have an important role in supporting farmers in their management function. What kind of services would be useful to farmers in this respect and how are they to be provided?

To answer these questions, we must first clarify what we mean by farm management. At the Swedish University of Agricultural Sciences we have recently conducted several interview studies among farmers to explore the nature of farm management. In these studies we identify co-ordination as the core activity in the management of a farm (Nitsch, 1990).

A farm is a complex system of many interacting factors. Some of these factors are of a quantitative nature, others are qualitative. They represent several different dimensions; biological, technical, economic, social, etc., some of which are largely unpredictable and beyond the control of the individual farmer. Each farm represents a unique set of interacting factors or a unique system. Farm management is the co-ordination of this system, internally as well as externally in exchange with its physical, social and institutional environment. The aim of the co-ordination and the ultimate criteria for success in farm management are to be found in the goals, values and aspirations of the farmer and the farming family.

The transfer of technology approach of advisory work is of limited value in such a management situation. As pointed out above, farmers do not primarily need more information. Their management task is to actively search and select information that is relevant to their goals and farming situation. Advisory services can be of great help in this process But the provision of relevant information does not assure successful management The essence of the management function is its practice, i.e. the co-ordination of action and information in a unique, complex and changing situation.

The farm management situation cannot be satisfactorily described in formal models or calculations. Therefore, continuous learning about the situation is crucial. Farmers must continuously monitor and structure their situation, compare it with past experiences and reflect on possible outcomes in relation to own and family goals. Advisors can assist farmers in this learning process primarily by asking questions about the farmers' goals and experiences and by suggesting and assessing alternatives for action.

Some people define farm management as business management. My analysis of the nature of farm management should make clear that this is too narrow. The business aspects of farm management cannot be treated as separate entities apart from the biological, technical and social aspects of the farm. Farm management is the co-ordination of the entire system. By addressing only business aspects of the farm, for instance by carrying out budget calculations, market analyses etc., one may provide very useful and relevant information. But if this information is not related to the other aspects of farming, it just represents another form of technology transfer or information delivery. To qualify as advisory services in farm management, the information on business aspects of the farm must be related to the farming system as a whole.

Which organisations should provide advisory services on farm management to the farmers? Even if such services fill an important function for many farmers, I think that in Sweden, they will no longer be offered by governmental agencies. Why should government support a service which is perceived as increasing the problem of over production? And learning as an end in itself, or assisting farmers in making wiser decisions for their own benefit, will not qualify as a reason for providing them a governmental service. Therefore, Swedish farmers will have to buy advisory services on farm management from other organisations. The most important of these are farmer-run consultant offices (LRF-konsult), agricultural societies (Hushallningssällskap) and private consultants. This system of providing farm management services has already been successfully applied for several years.

The Public Interest

Society has an interest in keeping farmers informed about regulations related to agricultural production, for instance regulations concerning environmental protection and animal welfare. It may also have an interest in pursuing information on political programs regarding rural development, energy conservation and, most recently in Sweden, the introduction of a new agricultural policy.

Such information activities in the public interest contain educational, advisory, as well as law enforcement aspects. The educational aspect refers to farmers' needs to understand the background, purpose and general implications of the regulations and political decisions. The advisory aspect refers to farmers' needs to find out how to adjust their own farming operations to a changing institutional environment. And the enforcement aspect, of course, refers to society's interest in implementing policies and regulations.

There is often a conflict between these aspects of informational activities. Education and advisory work start with the interests of the individual farmers and relate to their intrinsic motivation. The implementation of policies and regulations, however, start with the interests of society and may be enforced by sanctions. According to my experience as an advisory officer in the Swedish governmental agricultural advisory service, this conflict between the public interest and the interests of the individual farmers are often denied by the officials of the governmental advisory service. But nevertheless, empirical studies confirm that this conflict exists and that it affects farmers' trust in the governmental advisory service (Nitsch, 1982).

Trust is a necessary precondition for advisory work. It rests on the presumption that the advisory service gives first priority to clients' interests. Therefore, I do not think it is possible to maintain agricultural advisory services exclusively with the aim of implementing regulations and political decisions. As the educational and advisory functions of the governmental advisory service in Sweden is now on the decline, information activities representing the public interest, will most likely be taken care of by other organisations. It seems likely that they will be pursued by the same organisations that are now offering, management advice, the agricultural societies and the farmers' consultant offices. They now receive governmental funding for specific purposes such as advising farmers with certain herd sizes on manure application and giving management advice to farmers in certain regions to promote rural development etc. Such public funding of specific advisory programs has been tried for some years and has been found to work very successfully (Hallin and Winqvist, 1991, Nitsch, 1989).

Understanding Agriculture

The public interest I have been discussing above refers to interests that are manifested in legislation and political decisions and pursued by our public institutions. They refer to immediate societal concerns, that are commonly recognised and included in the political process. But there is also another public interest that refers to our role as responsible citizens in a democratic society. In order to perform our roles as voters, parents, professionals and consumers, and to act responsibly in other situations, where we affect the development of society, we need insights, knowledge and understanding. This also applies to the field of agriculture (Nitsch, 1988).

There seems to be two main schools of thought with respect to agricultural production. According to one school the appropriate way of developing agriculture is by the application of high-technology to gain increasing control of the systems of production. The other school sees agriculture as part of a complex ecological system, which we will never be able to control. Instead, we should direct our efforts to learn more from nature as a complex ecological system in a search of sustainable modes of production (Brown, 1991, Jackson, 1987).

In the political arena we can also distinguish between different positions with respect to the role assigned to agriculture. One position defines agriculture primarily as an economic and technological system with the primary task of producing cheap food. The other position assigns a broader role to agriculture, which includes the problems and issues listed in the beginning of this paper, i.e. environmental protection, the preservation of natural resources, the maintenance of biological diversity, the promotion of the quality of rural life etc. Some people think we should also consider the role of agriculture with respect to world population growth, global poverty, the green house effect, waste disposal or the recycling of garbage in the industrial world etc.

To take a stance on these issues and questions we need knowledge. Some of this knowledge can be drawn from research in the natural and social sciences, for instance on environmental pollution, economic development, agricultural policies, social conditions, nutrition, demography etc. We often refer to such knowledge as scientific facts. But such facts are not sufficient. We also need to understand what they mean in an appropriate context. This requires that we clarify the beliefs and values that are involved and become aware of the assumptions about man, knowledge, nature and society which we apply in relation to agricultural production.

The kind of knowledge I am asking for here, refers to long-range, collective values and implies a global perspective. We need this knowledge if we want to be serious about quality of life, international solidarity and the promotion of sustainable agriculture. But it is not asked for either in the market place, in the political arena or by the scientific community.

However, the technology we apply and the policies we pursue in agricultural production have, and will continue to have, long-range and geographically far reaching consequences on the environment and for human quality of life. We need to learn more about these consequences. Such learning should start with questions. Some of the questions we need to ask are:

How much is there of natural resources?

How much of each is used in different parts of the world?

How long will they last?

What are the consequences of the present modes of agricultural production on the environment, animal welfare, food quality, rural development etc. ?

What facts, values and assumptions do our politicians and industrial leaders apply to decisions affecting agricultural production?

What do we mean by quality of life?

There is nothing mystical with such questions. In some of the questions we will find much to learn from scientific facts. From other questions we will learn about the nature of conflicting paradigms in the scientific community. And from some questions we will learn that there are no scientific facts to rely on. All this is important to know as we participate in the development of our system of agricultural production as responsible citizens.

Which organisations in our society would be suitable to provide this kind of public interest information? I think neither governmental organisations nor farmer-run organisations. They are both limited to short-range and/or national concerns. This is also the case with the scientific community, which is dominated by a reductionist research tradition and depends heavily on political and commercial support for research funding. Therefore, I think we have to rely on environmental membership organisations such as The Swedish Society for Nature Conservation (Naturskyddsforeningen), Friends of Earth, Greenpeace, Society for Environmental Protection (Miljoforbundet) etc. to pursue informational activities with the aim of promoting a deeper and broader public understanding of agriculture.

The End of A Public Service

The era of the governmental agricultural advisory service in Sweden is now reaching its end. It started in the beginning of this century when the farmers' agricultural societies (Hushållningssällskap) received governmental funding for advisory services to farmers. Due to changing conditions in society, which were discussed in the introductory part of this paper, the provision of agricultural advisory services is no longer perceived as a governmental concern. In recent years government funding for these services have been gradually cut back and the charging of user fees has been introduced. As a result the advisory service offered by the governmental Provincial Agricultural Boards (lantbruksnämnderna) have been declining. Instead different farmer-run organisations, farmers' co-operatives and private consultants are gradually increasing their activities in advisory work (Månsson 1988, Nitsch 1989, Waldenstrom 1991)

On July 1, 1991, the remnants of the governmental advisory services pursued by the Provincial Agricultural Boards were incorporated with the much larger Province Boards (lånsstyrelser). I see little chance for the survival of the agricultural advisory services in their new institutional environment.

I have been stressing in this paper that agricultural advisory work should be an educational activity. As such its primary goal is to promote learning among farmers, which means the development of farmers' knowledge, skills and understanding. Such outcomes are not easy to measure. Advisory work as an educational activity also requires responsiveness to human needs and flexibility in planning and program implementation. This kind of human-oriented activity with its soft goals and outcomes, do not fit with the organisational structure of the Province Boards.

The Province Boards are the main executive branches of the national government on the local level. They each employ about 200-300 employees. Their main tasks are the planning, control and implementation of political decisions and legislation in the fields of regional planning, rural development, environmental protection, land survey, trade, civil defence etc.

An activity does not survive in an organisation unless it is rewarded within its organisational structure. Organisational theory and practice tells us that organisations strive for security and certainty. This means that they direct their activities towards predictable and measurable outcomes. We can therefore foresee, that advisory work aiming at human development, will fall short in the Province Boards in competition with its dominating and well-defined administrative functions, which are anchored in legislation and political decisions and continuously monitored and requested by politicians and higher level administrators.

In addition, agricultural advisory work in Sweden was never really defined as an educational activity. In my experience agricultural advisors have identified themselves primarily as subject matter specialists rather than educators (Nitsch, 1977). Such a professional identity has been promoted by their scientific education as well as in the reward system of the governmental advisory services. As subject matter specialists the advisors will be drawn upon in the Province Boards for various technical and economic investigations and task forces. And, of course, their promotion will depend on the priorities of the organisational leadership, which is not and never will be educators.

References

BROWN, L. R. (1991). State of the world 1991. New York and London: W.W. Norton & Company.

HALLIN, Sara and Winqvist, Karin. (1991). Examensarbete om miljörådgivning. Department of Extension Education, Swedish University of Agricultural Sciences, Uppsala. Forthcoming.

JACKSON, Wes. (1987). Altars of Unhewn Stone. Berkeley, California: North Point Pr ess.

MANSSON, Erik. (1988). Jordbrukets rådgivning, förr, nu och i framtiden. Kungl. Skogsoch Lantbruksakademins Tidskrift, Suppl. 20, pp 185-209.

NITSCH, Ulrich. (1977). Reinforcement of official goals of the Swedish National Board of Agriculture and District Agricultural Boards. Departrnent of Agricultural Extension Education, Swedish University of Agricultural Sciences, Uppsala, mimeo 41 pp.

NITSCH, Ulrich. (1982) Farmers' Perceptions of and preferences concerning agricultural extension programs. Report 195, Department of Economics and Statistics, Swedish University of Agricultural Sciences, Uppsala.

NITSCH, Ulrich (1982). Hur ser jordbrukarna på sitt arbete och på informationen? Report 196 Department of Economics and Statistics, Swedish University of Agricultural Sciences, Uppsala

NITSCH, Ulrich (1989) The legitimacy of the Aricultural Extension Service Agriculture and Human Values Vol V, No 4, pp 50-56

NITSCH, Ulrich (1989) Present Trends in European Agricultural Advisory Services. Paper presented at the National Symposium on Research in Extension in Columbus, Ohio, May 16-18,1989, 20 pp.

NITSCH, Ulrich. (1990). Computers and the Nature of Farm Management. Knowledge in Society, Vol 3, No 3, pp 67-75.

WALDENSTROM, Cecilia. (1991). Conditions for Knowledge Generation in Extension Work within Different Kinds of Organizations. Paper presented at the workshop on Knowledge Systems and the Role of Extension in Bad Boll, Germany, April, 1991, 20 pp.

The Agricultural Knowledge Transformation Cycle

Abraham Blum

In the 1940's, when communication research was in its infancy and dealt mainly with the uprising mass media, much attention was paid to the number of steps in the flow of information. The one step flow (a term which was coined only later assumed a direct impact of the source on the addressee of the information. Soon, this hypothesis was questioned, when further research (Lazarsfeld. et.al.1944) identified the important role of opinion leaders which spread information from the source to a wider audience. Later research showed that communication processes are often more complicated. Thus, Katz (1957) found that "most opinion leaders are primarily affected not by the communication media but by still other people". This led van den Ban (1964) to study the information flow in agriculture. He found that also in this case a multi-step process exists. Farmers receive and/or accept a new idea often from other farmers who were in contact with extension advisers who in turn got their information from a source closer to the origin.

The chain can be quite long. For instance, in the T&V extension model it is assumed that the information flows, in the best of cases, from researcher to subject matter specialists, from them to field level workers (unless the information is transmitted first through an agricultural officer) and then via a contact farmer (hopefully an opinion leader) directly or indirectly to other farmers. No wonder that "noise" at each intermediate node easily distorts the original message. Actually, in the case of large extension systems, we know very little about the number of steps through which farmers receive messages and what happens to the messages on their long journey. They might become watered down through misunderstandings; but they might also become amplified by opinion leading farmers who add their own experience to the original message.

From Technology Transfer to Knowledge Transmission

In all these communication studies, it is assumed that the information has a known source and is communicated linearly or diffused centrifugally to the receivers. The vectorial quality of the diffusion model was readily accepted by agricultural scientists, technologists and extensionists who assumed that useful agricultural information is generated at research institutions (only) and is transferred through extension to the end user of this information. Thus the Transfer of Technology model was created. It took quite some time, until also the scientific community realised that like in other communication processes, also the transfer of technology needs feedback, in order to be effective. in the long run. The concept of Transfer of Technology, which is still used quite commonly, especially among agricultural scientists, implies two notions on which I want to comment. One is the concept of transfer, the other that of technology.

When a scientist reads a basic research paper on plant hormones and then studies the effect of the new substance on the physiology of a flowering plant; when this investigation leads to the development of a commercial product which prolongs the longevity of the flowers, and when researchers, working with extension workers find the optimal concentrations for a given set of agroecological conditions and farmers adapt this to their economic conditions, information is not just transferred. It is constantly transformed by integrating into the original information further results of experimentation and of experience by a series of people (Blum, 1982). The term "transfer" creates the impression, that all of the credit is due to the originator, ignoring feedback from farmers and successive integration processes. On the other hand, "transformation" acknowledges the contribution of each actor in the process.

Messages are not necessarily decoded in the way they were encoded. The receiver uses earlier knowledge to grasp the new information and immediately integrates it into a higher order of understanding, using advance organisers and other mental devices which add meaning to an informative message.

My next concern is with the different meanings of information. knowledge and technology. In everyday life and in the major dictionaries, the first two terms are used as overlapping quasi-synonyms. Thus the Oxford Dictionary suggests that knowledge is (also) a person's range of information; and Penguin suggests that information is the act of imparting or acquiring knowledge. Röling (1989), following Havelock´s work, defines knowledge as a property of the mind which cannot be transmitted to others unless transformed. Only information is transmitted between persons. Having said this, Röling points out that encoding and decoding an information message is in fact transforming them. Since information is always transformed when it is communicated from one person to another, and since pure recall is soon forgotten and useful information is assimilated into a person's knowledge body, bringing about new insights, the term knowledge transformation expresses the process better than information or technology transfer. This knowledge transformation process is influenced by a number of factors, which can be managed to a certain degree (Blum, et.al., 1990).

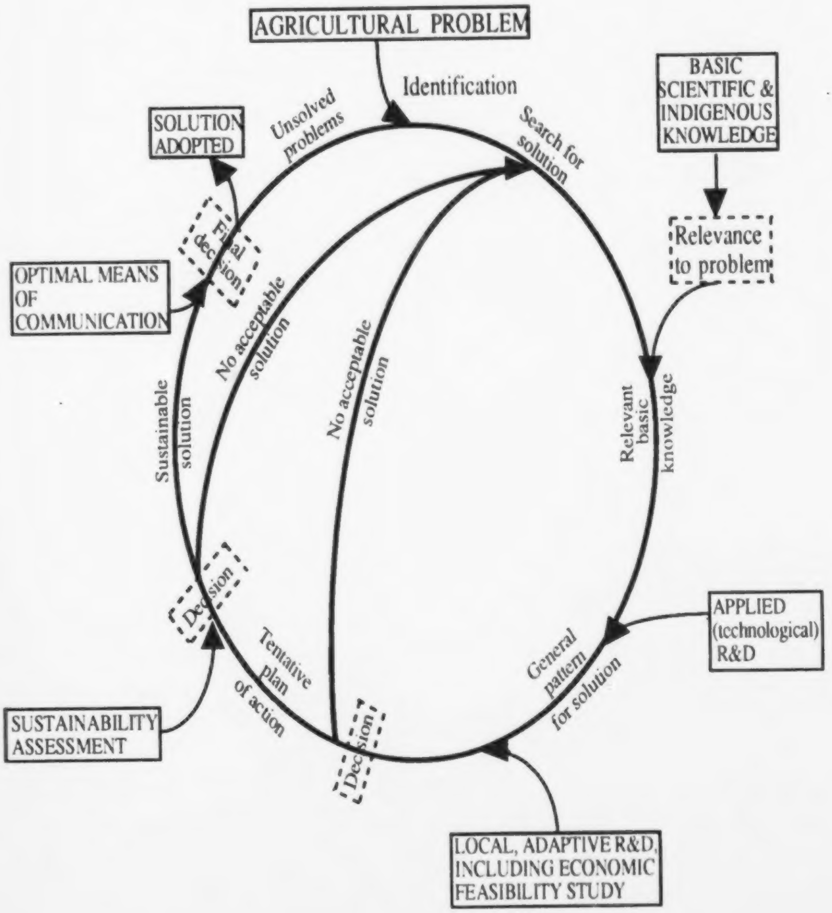
Technology is another term which is used by different people for different concepts. Originally and etymologically it refers to the science of practical or industrial arts. Dictionaries still define it thus. Then it became more and more used for applications of science (Blum, 1988). By doing so, authors sometimes forget that major technological breakthroughs in the history of mankind, like the invention of the wheel and discovery of early metallurgical processes were the outcome of many trials and errors, and did not arise in a process based on hypotheses and the understanding of natural laws. The term technology suggests to most people something technical - hardware. Thus also in agriculture. Machines, but also seeds of new varieties are considered technological products. However, it is often forgotten that practical knowledge without any hardware involved can bring about important improvements in the agricultural system. Thus, changes in crop rotations, in the timing of sowing. or the renunciation of harmful activities like burning of dung or overgrazing have brought about important, low cost improvements into many agricultural systems. They have one thing in common with costly science based technologies: they are based on a lot of knowledge. Therefore, I prefer the term knowledge transformation over technology transfer.

The Agricultural Knowledge Transformation Cycle

After this semantic excursion, I want to come back to the evolution of the knowledge transformation approach. An important step was the recognition that the knowledge transformation process is cyclic, and not vectorial, as the Transfer of Technology model assumed. Much credit is due to Havelock (1969) who more than twenty years ago developed his knowledge utilisation models, using a cyclic paradigm. One of the first cyclic models which describes the agricultural knowledge cycle, emphasising the need for pre-extension and verification trials is probably Arnon´s (1987). Like the Transfer of Technology model, it emphasises rather the institutional linkages than the cognition's involved (Blum, 1990; Röling, 1989).

Agricultural knowledge systems can be looked at from two complementary angles: the institutional and the cognitive point of views (Blum, 1990). In the first case, we ask: who does what in the knowledge transformation process? In the second, we ask: what happens to knowledge. In both views we assume that practical agricultural problems exist, which are expected to be solved (among other means) by knowledge input. Arnon´s model emphasises institutional links. The model propose (Fig.), which is based on a more specific case study which I made some years ago (Blum, 1982), describes the transformation of knowledge which is used to solve an agricultural problem.

Figure 1: The Agricultural Transformation Cycle


AGRICULTURAL PROBLEM
Identification
BASIC SCIENTIFIC & INDIGENOUS KNOWLEDGE
Search for solution
Relevance to problem
Relevant basic knowledge
APPLIED (technological) R&D
General pattern for solution
LOCAL, ADAPTIVE R&D, INCLUDING ECONOMIC FEASIBILITY STUDY
Decision
Tentative plan of action
No acceptable solution
No acceptable solution
Decision
SUSTAINABILITY ASSESSMENT
Sustainable solution
OPTIMAL MEANS OF COMMUNICATION
Final decision
SOLUTION ADOPTED
Unsolved problems

The cycle usually starts with a real problem encountered by farmers. The problem has to be clearly identified, in order to enable a successful search for a solution. The researcher searches in the vast pool of basic scientific or indigenous knowledge for those bits which seem to be relevant to the problem. The better the retrieval system available to the researcher, the more appropriate and timely will the basic knowledge be which serves as rough material in the applied research. Only that basic knowledge which can be applied to solve the problem or can suggest an approach to solve it is considered.

I have included indigenous knowledge together with scientific knowledge at the basic stage, because both sources can yield insights which are apt to lead to innovative approaches towards solving a problem. The value of indigenous knowledge is often not in its practical applicability to the problem situation, especially when we look for an alternative solution which should replace an unsatisfactory indigenous practice. However, understanding the basic thinking behind indigenous knowledge, coupled with scientific scrutiny, can bring about a new recombination of ideas. The recombination of elements from scientific and indigenous knowledge can yield a hybrid vigour solution.

/

Basic and Applied Research

Sometimes, there is not enough basic knowledge available in order to solve an agricultural problem. In such a case, research will be partly basic and partly applied. We use the terms "basic" and "applied" to emphasise two points on a continuum, well knowing that no clear borderline exists between the two. Institutional knowledge systems differentiate between basic research, conducted at universities, and applied research, conducted at institutes that are typically affiliated to a Ministry of Agriculture. While the institutional affiliation certainly effects the type of research conducted, many very practical, applied research results came out of universities. On the other hand, at nearly all first class applied research institutions also basic research is conducted, which is believed to be in the long run relevant to the solution of practical problems. The attitude of researchers, their dedication to agriculture and available budgets can be more decisive than their institutional affiliation in directing their work towards basic or applied problems, respectively.

Even a basic researcher who sees his task in discovering laws of nature may suggest how his finding can contribute to the solution of practical problems. A classical case was von Frisch´s discovery of the bee dance patterns (Frisch, 1964)). At the end of his original paper, von Frisch, a basic biologist at his heart, stated:

> "To introduce the procedure into practice would be a gratifying task for bee experimental stations. Then, as often before, the fruits of theoretical work will serve practice. As much as I hope and expect this to happen, allow me the confession: The purest joy remains that of insight, free of the earthly touch of a useful exploitation."

While the basic researcher can ignore the applicability of his findings, the technologist at the Research and Development (R&D) stage cannot do this. It is his or her main duty to transform the basic knowledge which was found to be relevant to the problem under scrutiny into a practical solution. Again, there is no clear line between research and development. It is a continuum which leads from the theoretical to the practical. The investigator at this stage will combine library search with laboratory, on-station and on-farm experimentation.

Adaptive Research

Much has been written about basic and applied research. The recognition that a major gap exists between research and technology, and between the creation of general patterns of technologies and their adaptation to specific sites of application came only later, when reviewers started to look at agricultural knowledge as a system. A very concentrated effort was made by ISNAR (e.g. Kaimowitz et.al., 1989, Röling, 1989, Sims & Leonard, 1989). Arnon, (1981 and 1989), who had suggested the term of pre-extension research for what is now known mainly under the name of adaptive research. reviewed a vast number of case studies which demonstrate the seriousness of the problem.

General patterns for solutions have to undergo adaptive research and development in order to test the proposed solution under localised conditions. In many cases, sound but unadapted solutions that were arrived at after the investment of scarce resources, yielded disappointment when they were extended to farmers without prior adaptive R&D at the sub regional level. Adaptive research must include an economic feasibility study. This is another reason, why adaptive R&D should be conducted on farmers´ fields. In Israel's development areas, for instance, adaptive research is conducted mainly by R&D authorities, under which teams of development planners, researchers, extension advisers and local growers´ committees decide on the field trials that are to be conducted.

At the adaptive research stage, important unsuitability's are discovered. Some can be overcome by further local R&D. Others are more fundamental and the problem has to be resent to the researchers.

Sustainability

In the immediate next step sustainability of the solution must be assessed. Sustainability can have two eco-meanings: an ecological and an economic one. Ecologically unsustainable solutions to farming problems have brought about the dust bowl, much of desertification and erosion. It has become a major issue in some parts of the world, where the environmental deterioration is strongly felt, e.g. in the European Community. In other parts, environmental sustainability is still neglected.

Economic long-range sustainability is one of the major problems in development projects that are financed by donors for a restricted time period. Unless economically sustainable, plans of actions have not much of a chance to outlive the project phase, once farmers are no longer backed up by outside assistance.

Actually, both the economic and ecological sustainability assessment should be part of the localised, adaptive R&D stage, coming immediately after the first agrotechnical test results are obtained.

Closing the Cycle

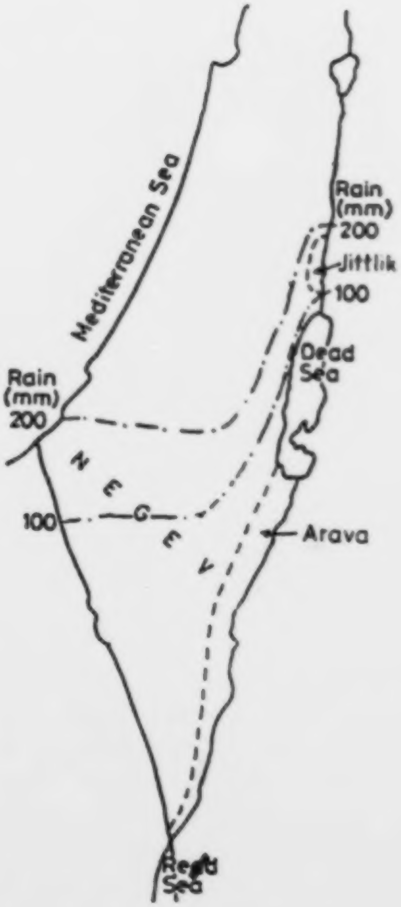
Now we come to extension and other communication means, among which the most suitable have to be chosen in order to reach the final decision maker, the farmer, and to help him/her to adopt or to reject the solution. Whenever knowledge is transformed from basic knowledge to sustainable solutions, some of the problems remain for lack of an optimal solution and new problems are identified. Therefore, the search for a relevant and applicable solution continues. A new cycle starts. As more data on the problem situation become available and are carefully evaluated, the chances for better solutions grow.

While there is necessarily a certain sequence in the steps which form the knowledge transformation cycle, some may overlap, especially at the R&D stages. Sometimes shortcuts are attempted: extension advisers and farmers may adopt a solution which has not been regionally tested; or sustainability has not been assessed. In certain cases a "gut feeling" for such shortcuts can give the entrepreneurial innovator an advantage, at least on the short run; but more often shortcuts lead to failure. Repercussions can be serious, especially when the fallacious solution is advanced by an effective extension system.

A Case Study

The following case study shows how the agricultural knowledge transformation cycle functioned in two geographically adjacent cases in which the agroecological conditions were similar, but the socio-cultural background of the farmers was different. The first case describes the development of drip irrigation in a technologically advanced society; the second relates to the introduction of the same technology into a formerly half-nomadic Bedouin community.

Map 1: Arava and Jiftlik


Mediterranean Sea
Rain (mm) 200
Jiftlik
100
Dead Sea
Rain (mm) 200
NEGEV
100
Arava
Red Sea

The Case of the Arava Valley

Problem identification. The Arava valley, in Israel, stretches from the Dead Sea to the Red Sea. Most of it is at about sea level. It is a desert with occasional winter rains which average less than 50 mm a year. Temperatures reach more than 40° Celsius in August and fall to an average 17° degrees in January. Relative humidity is very low, and evaporation is very high. The soils are typical desert formations with wind-blown coarse sand and heavier loess. They are highly saline and have to be leached before they can be cultivated. Occasional winter flash floods originating in the mountains to the West are too brief to allow surface storage. In various places deep ground water reserves with a still reasonable amount of chlorides were found and can be used. When this water is pumped into furrows for gravity irrigation, less than half of the water reaches the plants, much is evaporated and therefore the water reaching the plants is highly saline. Erosion is another problem. When sprinklers are used, the erosion problem is smaller, but evaporation rates are higher, under the extreme dry conditions, and the saline water damages the foliage.

The Arava valley had two distinct advantages, when cultivation efforts started. Irrigatable land (though stony desert) was available, and because of the warm winter, a high potential existed for the winter vegetables and flowers which could be exported. However, to develop agriculture under these conditions, suitable crops and varieties, and a better suited irrigation method had to be found.

Search for relevant knowledge. Agricultural research had started in the area in the 1950's, when an experimental desert garden was established near Elat, at the southern end of the Arava valley. Among the many cultural plants which were tested for salt resistance, the most promising crops were date palms and sisal. However, date palms cannot provide year round employment for the settlers and they do not use the relative advantage of the warm winter. Sisal had no chance to become economical.

Then, the second approach, to make better use of the water in irrigating winter crops, was considered. For decades, the principle of drip irrigation was known. Basically it was very simple. Water is brought in pipes close to plants and is then released through small holes in the pipe directly into the root area. Thus much less water is wasted by evaporation during sprinkling or when an area without plant roots receives water. However, so far a suitable technology was missing. Early attempts to use clay pipes with open joints, small holes chiselled into metal pipes, canvas hoses without the rubber lining or perforated plastic pipes had been unsuccessful. Pressure could not be kept constant along the irrigation pipe and early plastic was damaged by mice. Thus, to solve the problem. an improved technology was needed.

Technological R&D. Many years ago, Simcha Blass, an Israeli water engineer had conceived a low pressure system for delivering small amounts of water, at frequent intervals, through specially designed emitters to the roots of the plants. With the development of improved plastics and laser technology used in the perfection of the emitters. a system of durable and easy transportable plastic pipes, fitted with emitters at freely chosen distances became possible, without loosing pressure along the pipe.

Adaptive, regional R&D. The breakthrough would not have come about without the active co-operation of regional collective farming communities (Kibbutzim), which are also situated in the semi-arid Negev, in a similar though not so extreme agro-ecological situation as the Arava. In this special case, the community had a high educational level average and was open to experimentation. The latter was based to a large part on their own field trials. The Kibbutz had set up a sprinkler factory and had gained important experience in irrigation technology and in the use of brackish water in semi-arid agriculture. In another Kibbutz in the region, one of the veteran members had experimented for years with agricultural plants subjected to irrigation with brackish water and had studied how they behaved under this stress. The close co-operation between technologists, manufacturers and clients accelerated the further development of the system, mainly through the introduction of a coiled emitter that prevented clogging and reduced discharge pressure.

With this improved drip irrigation system at hand, field trials were set up in the Arava. Tomatoes yielded 58.3 tons per hectare, compared to 35.8 tons with sprinkler irrigation. Drip irrigation proved to be also labour-saving, because the pipes did not have to be moved and could also be used to distribute water-soluble fertilisers directly to the root system.

Economic considerations and further applied research. Although the Arava valley is ideal for the production of winter vegetables, and especially tomatoes, these have to compete on the European market with local products, grown under glass, and with the produce of Mediterranean countries which employ cheaper labour, enjoy special arrangements with the European Community Market and are also geographically closer to the market than the Israeli produce. On the other side, tomatoes grown in the Arava valley had to reach the market either after a long and fruit spoiling sea transport or using expensive air freight. Induced by these economic considerations, a group of geneticists and plant breeders, co-operating closely with the R&D Directorate of the Southern Region, developed a series of new tomato varieties with a shelf life of four weeks and more. These new varieties are based on crosses between the existing quality tomatoes and uncultivated types with a genetic tendency not to ripen at all. The new varieties arrived on the market in much better shape and fetched good prices. Thus, the loans for the equipment, which were subsidised by the government, could quickly be repaid.

Sustainability. The drip irrigation system showed not only economic sustainability, but had also some ecological advantages over other types of irrigation. Since the amount of water reaching the plants could be well controlled and with it the amount and depth of the fertilisers which were dissolved in the water, fertilisers could not reach the ground water. The drip system proved also useful for leaching out salt which accumulated in the upper layer of the soil.

Communication. The settlements in the Arava valley were well organised and the extension service of the Ministry of Agriculture was involved already at the development stage, through its participation in the regional R&D directorate. Furthermore. there existed quite good direct contacts between the researchers who conducted their field trials in the region and the local vegetable growers.

Also the agricultural press (mainly a widely distributed monthly journal), reports the regional experimental station results which are sent to all villages and the extension publications diffuse new research results and farmers´ experiences.

The cycle closes - and new problems arise. With the expansion of the irrigated area in the Arava valley, water became more and more a limiting factor. The use of water had to be made more efficient. Therefore, micro-computerised field equipment for the automatic opening and closing of valves at the right time was developed. This equipment can be easily programmed by farmers, and proved to be economical, under the local conditions.

The case of the Jiftlik

Problem identification. The Jiftlik is the central part of the lower Jordan valley that stretches from the Dead Sea 100 km north. It lies 200-400 meters below sea level. Like the Arava, the Jordan valley is part of the Syrian African rift valley. The climate is similar to that of the Arava. The average amount of rain in the Jiftlik is 140-170mm. The agricultural population consists mainly of Bedouins who until recently were half nomads (see Map 1). Also many of the local, Arab farmers and farm workers move during the hot summer to the mountains.

Most of the farmers are share-croppers who have to give 50% of their yield to the absentee landlord, to whom belong also most water rights. Water was supplied partly from brooks, during the rainy season, and from quite salty wells. Up to four farmers. who lived along a common ditch. received their water allocation concurrently, once in 5-8 days, for a fixed time. Thus, the fields close to the canal, and especially those upstream received huge amounts of water, much above the needs of the crops, and erosion problems arose. Land further along the ditch often did not receive water and was not cultivated. The most common irrigation methods were long and winding furrows, for vegetables and fruit trees, and flooding for cereals. Similar to the Arava, evaporation and salt accumulation rates were high.

Use of existing knowledge and experience. Based on the experience in the Arava and other parts of the Israeli Negev, already in 1970 comparative experiments with different irrigation systems were conducted in the Jiftlik. Here too, drip irrigation proved to be the best solution. However, this meant that the water supply system had to be changed. Landowners did not like to change the system. The law was with them and could not be changed for political reasons.

Technological R&D. To use the irrigation water efficiently through drip pipes, the following technique was developed: small reservoirs were dug out for each farmer and covered with plastic sheets to prevent the water from infiltrating the soil. When the time to receive water came, farmers would now let the water flow into the reservoir and use it only when and where needed. This meant that a small pump and drip equipment were needed. On the other hand, in this way more fields and those which could not be reached by gravitation, could now be irrigated with the same amount of water. Controls over the amounts of water each farmer drew out of the ditches were improved.

To pay for the investment and maintenance of drip irrigation, an improved cropping system with higher returns had to be found. The experience in the neighbouring Arava had shown the potentials of winter vegetables for export. Adaptive trials in the Jiftlik area verified that in the winter season two export crops, usually tomatoes and cucumbers can be grown on the same bed, in two overlapping stages.

Economic feasibility. Since the adapted drip technique was developed in the Jiftlik area itself, no further adaptive R&D was necessary, in this case. The crucial point was now economics. How could these sharecroppers afford the drip irrigation equipment? The answer could be only a package which included cash crops and improved growing techniques, so that higher returns could be expected than in the past, as well as affordable credit. For farmers in the Jiftlik two alternative markets were available: over the Jordan bridges into the Hashemite Kingdom and further, or through the Israeli export outlets to Europe. The first loans for irrigation equipment came from a NGO, a Mennonite Development Foundation. They gave the drip irrigation equipment, directly to the sharecroppers. After the first Jiftlik farmers tried the new development package and succeeded economically, others followed, using commercial credit.

Sustainability. The trials during the first seasons showed a steady growth in income and net profit for the farmers. Thus economic sustainability could be expected and was actually confirmed, in the meantime, after outside aid stopped. The same control of water and fertiliser use described in the case of the Arava exists also in the Jiftlik.

Communications. How did farmers, many of whom were illiterate half-nomads, accept the drastic changes in their farming system? A series of factors came together in achieving the result. Many farmers had worked, and continued to do so, in neighbouring Jewish villages, and had learned the techniques there. Regional extension workers had been involved in early trials and were backed up by the same researchers who had worked also in the Arava. Thus, some innovative farmers could be persuaded to try out the new crops-and-techniques package, backed up economically by the available credit and marketing opportunities. Their success and further efforts by the extension service helped to spread the changes within about 12 years to practically all farmers in the region.

New Problems. With the intensification of irrigated agriculture in the Jiftlik, new problems arose. As in the Arava valley, the demand for water grew, and its use had to be made more efficient. In the Jiftlik area this is now done by replacing the open ditches by pipes. At the same time, the intensive use of irrigation water also enhanced the growth of noxious weeds. Inexpensive and safe solarisation was no longer good enough to solve the problem. Soil fumigation had to be introduced thus opening a whole cycle of new, secondary problems that still have to be solved.

Summary

The agricultural knowledge transformation approach assumes a multi-step process in which knowledge is gradually transformed, until it reaches a stage at which end users (farmers) can solve a problem, which was the trigger for the knowledge search and research. This process is assumed to be cyclic, with a number of decision points, at which a proposed solution is further developed and finally adopted or recycled for renewed investigation. The main stations in the agricultural knowledge transformation cycle are (I) problem identification, (2) search for relevant basic, scientific and indigenous knowledge, (3) applied (technological) research and development, (4) localised adaptive R&D, which includes economic feasibility studies, (5) ecological and economic sustainability assessment, (6) choice of optimal means of communication. A case study shows how the agricultural knowledge transformation cycle functioned in two cases in which the agro-ecological conditions were similar, but the socio-cultural background was different.

References

ARNON, I. (1981) Modernisation of Agriculture in Developing Countries. Chichester: John Wiley.

ARNON, I. (1989). Agricultural Research and Technology Transfer. Barking, Essex and New York: Elsevier Science Publishers.

BAN A.W. van den. (1964) “A revision of the two-step flow of communications hypothesis”. Gazette, 10. pp. 237-249.

BLUM, A. (1982). From biologlcal knowledge to community development - a model and case study of the transfornation process. In M. Atchia (ed.) Research in Community-based biological education, Southampton and Reduit: International Union of Biological Sciences.

BLUM, A. (1988) Science and technology education and agriculture. In D. Layton (ed.) Innovations in science and technology education. Vol.2. Paris: UNESCO.

BLUM, A. (1990) What can be learned from a comparison of two agricultural knowledge systems? The case of the Netherlands and Israel. Research and Development in Agriculture, Vol.7,(in press).

BLUM, A., Röling, N. and Engel, P. (1990) Effective management of agricultural knowledge systems - an analytical approach. Quarterly Journal of International Agriculture, Vol. 29, 1990

FRISCH, K. von. (1964). “Die "Sprache" der Bienen und ihre Nutzanwendung in der Landwirtschaft”. Experimentia, Vol.2, pp.397-404.

HAVELOCK, R. G. (1969). Planning for innovation - A comparative study of the literature on the dissemination and utilization of scientific knowledge. CRUSK, Ann Arbor: University of Michigan.

KAIMOWITZ, D., Snyder, M. and Engel, P. (1989) “A conceptual framework for analyzing the links between research and technology transfer in developing countries”. Linkages Theme Paper No. 1. The Hague: ISNAR

KATZ, E. (1957). “The two-step flow of communication: An up-to-date report on an hypothesis”. Public Opinlon Quarterly, Vol. 21, 61-78.

LAZARSFELD. P.F., Berelson, B. and Gaudet H. (1944) The People´s Choice. New York: Duell, Sloan & Pearce.

RÖLING, N. (1989). “The agricultural research-technology transfer interface: A knowledge systems perspective”. Linkages Theme Paper No.6. The Hague: ISNAR.

SIMS, H. and Leonard. D. (1989). “The political economy of development and transfer of agricultural technologies”. Linkages Theme Paper No.4. The Hague: ISNAR.

New Challenges For Extensionists: Targeting Complex Problems and Issues

A.M Dunn

Extension workers often question who their audience is or with whom they should spend their valuable time. The question was recently addressed at a training workshop for Landcare co-ordinators and soil conservationists working for the New South Wales Department of Conservation and Land Management. Here it was posed as the question:

"Who should we target"?

This is the same question that extension workers constantly asked themselves in the 1960's and 70's often concluding that they had a primary audience of farmers and intermediate audiences of bank managers, livestock selling agents and accountants. The same sort of thinking led workers doing post graduate courses to become preoccupied with research questions such as:

"What does the audience think of the extension service provided by my organisation"?

The aim of this paper is to explore alternative thinking to help extensionists approach complex agricultural and environment problems and to help them prepare for changing roles in the future.

One conclusion drawn is that different questions must be posed which elicit new extension paradigms and problem improvement methodologies. It is argued that these are needed to address the complex issues and conflicting human goals which arise in Landcare, catchment management and environment protection work. The relevant question in these situations is not *"who should we target"* , but*"what (issue) should we target and how"?*

Theories of Change and Complex Problems in Agriculture

It is only in the last 40 or 50 years that the social sciences have been used to study problems of change in agriculture. One such theory is diffusion and adoption (Rogers and Shoemaker, 1971) which has been the accepted theory for understanding change in agriculture for more than twenty years. Its central thesis is that technology is good, inevitable, and goes hand in hand with modernisation of agriculture (Mosher, 1969). Theories of economics and farm management analysis have also given extension workers another tool to improve efficiency and advocate change. This approach recognised that some farm changes were desirable because problems could be diagnosed and solved. In this way change was seen as a rational process whose benefits and costs could be accurately measured. This type of extension complemented the adoption of innovations and helped to produce a modern efficient agriculture of which a developed economy could be proud. There was no doubt that the relevant extension question under these conditions was

We have now entered a new phase of change in agriculture where it is recognised that technological change is not good in itself and is not an imperative for all farmers. In fact, some innovations have proven detrimental, and increased production has not benefited all farmers or the nation in the long run. Even Everett Rogers, the arch advocate of diffusion admits that technology has caused problems (Rogers *et al.* 1988). Technology itself has caused problems in a wider sense, for instance chemical residues in food products. Improved pastures have contributed to soil acidification and the widespread use of herbicides have produced resistant weed varieties. Inappropriate use of nitrogen fertilisers and faulty irrigation technique, have also caused widespread systemic problems in agriculture, not to mention the over clearing of trees and the resulting dry land salinity and rising water tables.

Other systemic problems in agriculture include over production which has resulted in lower prices to the farmer and trade wars between nations. Conway (1987) rates protectionism as the most dominant factor in Western agriculture in the latter part of the 20th century. Extension in effect has worked itself out of a job in developed economies and must find new directions and roles. For individual farmers key questions include how to survive economically in farming, and which of the vast range of technologies and business plans is appropriate for particular farming situations (Nitsch 1982).

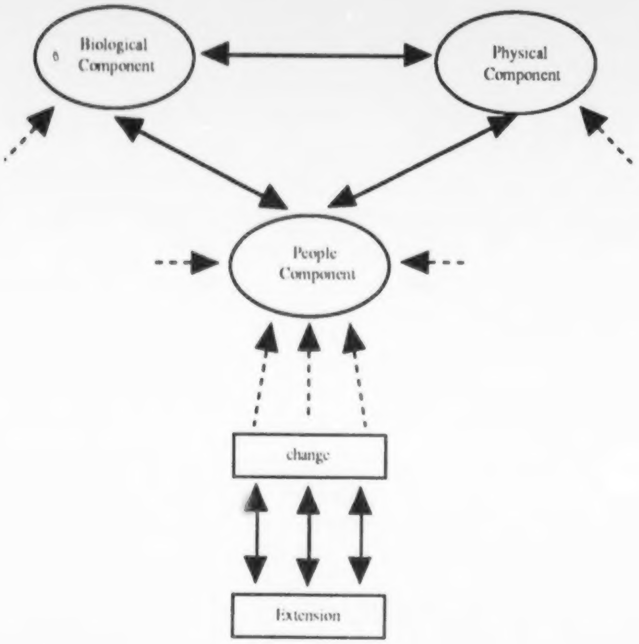
Farmers seem to have recognised that a new approach is needed to solve complex problems and have formed Landcare groups (Disken *et al.* 1988). Ampt and Ison (1988) have shown that farmers are becoming concerned about chemical residues. The organic movement is possibly one consequence of this. Rural sociologists (Buttel *et al.* 1990) and agricultural ecologists are also worried about the problems of modern agriculture and the future stability of rural societies. All this means that the role of the extension worker is changing rapidly and the training and expertise needed must now include new disciplines such as agroecology and critical rural sociology. New approaches and support is needed to equip and retrain extension workers so they can confidently approach the complex socio-economic-biological problems of modern agriculture.

Approaching Complex Problems and Issues

The need to understand the broad context in which complex agricultural problems occur has lead to the systems approach in agricultural education (Bawden *et al.* 1984 and Dunn,1991). The full importance of human factors is appreciated in this approach when it is realised that change can only occur via the people component of the system. (See Fig. 1)

47

Fig. 1. The Components of Agricultural Systems and Avenues of Extension Change



Unfortunately some agricultural scientists assume that all problems can be solved and the system improved by working directly on the biological and physical aspects. They also think that somehow when the answers to problems are found its just a matter of diffusing the new information into the extension system and the social networks for adoption to occur. This worked and probably still works for simple innovations but it does not help the process of change where environmental issues and problems of conservation and land use are concerned. Fleigel and van Es (1983) also came to this conclusion. In addition they provided an explanation of why the diffusion model was inappropriate to the acceptance of improved conservation practices and environmentally benign production technology.

Outdated extension concepts and methods are also inappropriate for tackling the complex problems of agriculture and the environment. Dunn (1991), Nitsch (1989) and Röling (1987) also explain the need for new extension paradigms to tackle the emerging complex socio-economic, political, and environmental questions. Most of these paradigms include all interested parties in the research-extension environment, beginning with farmers. Much of this new thinking has been pioneered in less developed countries where the consequences of social disruption by unplanned technology and cultural change are so obvious and devastating (Conway 1985, 1986). Approaches worth mentioning include Farmer Systems Research/Extension (Russell 1990; Simmonds 1985; Hildebrand 1988). Agricultural Knowledge Systems (Röling *et al.* 1987), Farmer first (Chambers et al. 1989), and Development Communication (Balit 1988). In Australia a new model of extension thinking has been developed by Barrie Bardsley which he calls the Resource Model of Extension (Bardsley 1982).

Two important points emerge from this new extension thinking. The first is that *people* are an integral part of complex agricultural and environmental problems. Thus any theory or method that seeks to improve these problems must include a strong people component. The second is that farmers and people from the local communities want to be involved in the research and extension process from the word go. No longer do they want bureaucracies to control this process. These trends were recognised and discussed at a national conference on agricultural extension in Canberra 1990. Russell (1990) mentioned the need to include farmers in research, and the published conference outcomes gave a commitment to involving farmers in the development of technology. In part, the conference editors said that it was essential to:

> "Develop a system that is user driven and facilitates the full scope of relationships involved in the development and application of new and existing knowledge in rural industries - these include producers, rural R&D[1] corporations, government agencies, financial institutions, marketers, processors, researchers extension workers, consumers and community interests (AIAS 1990)".

Returning to the complexity of agricultural problems. First it is important to get a clear understanding of agriculture as a human system. Jim Wilson describes agriculture as a *disturbed ecosystem* - disturbed by man of course (Wilson 1988). Conway (1985) says that ecological knowledge is essential to retain a stable relationship between agricultural and natural systems. Thus it would seem logical to fully include all involved people in developing, improving and solving problems in agriculture. And yet farmers are largely left out of the problem definition stage by the Diffusion Model (Rogers, 1983). The bureaucratisation and the reductionist science approach tend to attach the human factor on to their models of agriculture rather than seeing it as an integral part. Thus these approaches have failed to recognise that many complex agricultural problems are also issues. By this I mean that peoples' opinions and feelings are involved as well as the "facts" of the situation. Under these conditions problem definitions and solutions are debatable and uncertain. Wilson (1988, p. 57) describes an issue in equation form which if considered carefully accommodates hard (facts) and soft (people type) data.

$$\text{Ideal - Actual = ISSUE}$$

In this equation the difference (*i.e.* less than ideal) is a deficiency about which there are no clear answers. What is needed is a methodology which takes account of the people factor in the problem, while at the same time enabling improvements to be made rather than aiming for a perfect solution.

One interpretation of Fig. 1 is that problem identification and improvement in agriculture requires equal emphasis on physical, biological and people aspects. For example many Landcare groups identify salinity as a problem. It is relatively easy to come to grips with the physical and biological nature of the problem (for examples saline seeps and low agricultural productivity) but it is more difficult to get the people involved to take action. In the Landcare movement it seems that many groups become absorbed in fund raising and tree planting rather than team building, co-operation and social support. Furthermore, funds are rarely spent on how to elicit problem perception by the local community members or to train and harness social action. This brings me back to the idea of issues, and to the argument that salinity is as much an issue as it is a physical and biological problem. By this I mean that there are differing perceptions of what salinity is, what causes it, how important it is on "my farm", how important it is in the district/state, nation etc., and what should be done about it. Most important is the question of "what I am prepared to do?" All these questions were considered in a survey of dry land salinity of the Young Shire in New South Wales (Dunn and Gray 1991). This was *a people study* of the salinity issue, as it concentrated on *how landholders perceived the problem*. This study and the experience of Landcare workers shows that a different range of skills and knowledge is needed to cope with the complex problems and social situations encountered in agriculture and rural society. The important ones are listed below;

---

[1] R & D means Research and Development

- knowledge of the complex factors that cause land degradation and environmental hazard,

- knowledge of agricultural production processes,

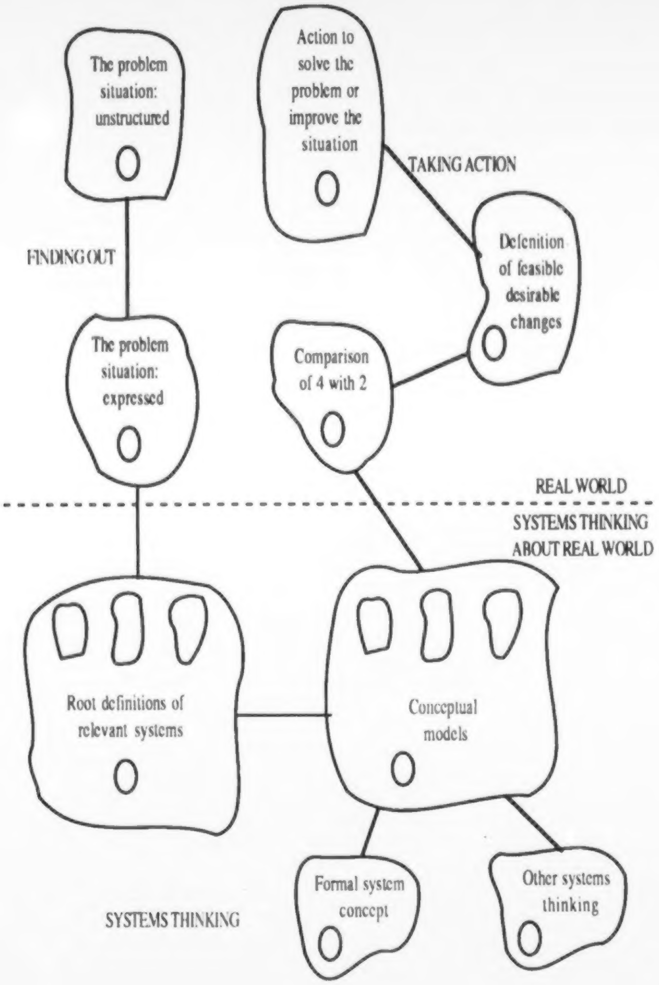
- communication and people skills to work with groups of land holders and bureaucracies, and

- a problem solving methodology which enables the physical, biological and people aspects of a problem or issue to be approached and improved.

Problem Solving that Accommodates People and Issues

Peter Checkland's problem solving methodology (Fig. 2) has some special features which make it particularly suitable for complex situations where people factors are involved. In other words it can handle issues, and problems with no clear solutions. Its use of systems thinking allows consideration of all components of the problem situation as well as giving the researcher the opportunity to discover creative and novel solutions.

Fig. 2: The Checkland Methodology (after Wilson 1988)


The problem situation: unstructured
Action to solve the problem or improve the situation
TAKING ACTION
FINDING OUT
Defenition of feasible desirable changes
The problem situation: expressed
Comparison of 4 with 2
REAL WORLD
SYSTEMS THINKING ABOUT REAL WORLD
Root definitions of relevant systems
Conceptual models
Formal system concept
Other systems thinking
SYSTEMS THINKING

Other features which make the Checkland methodology useful and unique are;

- it is non linear, which means that you can start at any step and move in any direction,
- it advocates the development of complex situation perceptions and ideals,
- it uses a "working with people" approach,
- open mindedness and brain storming techniques are used,
- thinking about the ideals are essential,
- jumping to conclusions and quick answers are avoided, and

- realistic achievable change is advocated only after abstract, creative thinking and detailed systems analysis has occurred.

Using Checkland's Methodology

At Charles Sturt University - Riverina our experience with Checkland's methodology has been in the undergraduate teaching programme where students use it to approach, analyse and recommend improvement for problem situations. Case studies are done on complex agricultural problems, all of which have systemic content and important consequences for the people components. The students work in groups and usually begin to approach the problems by understanding their technical aspects. However, it does not take them long to realise that the real challenge is in understanding the human components. Social processes in the problem solving team are vitally important to the success of the work. They are important at the brain storming stage and during the development of ideal models. As Wilson (1988) observes, Checkland's methodology should be used to communicate and debate feasible changes.

One application of the methodology is described below. The work involved a student group who were asked to improve the management of the university farm. The task was presented to the researchers in the form of a brief, viz.:

"develop a programme for the sustainable management of the university farm into the 21st century."

The students were asked to gather data, research the problem through to stage 6 in Checkland's methodology, and present a written report. Highlights of the research process were;

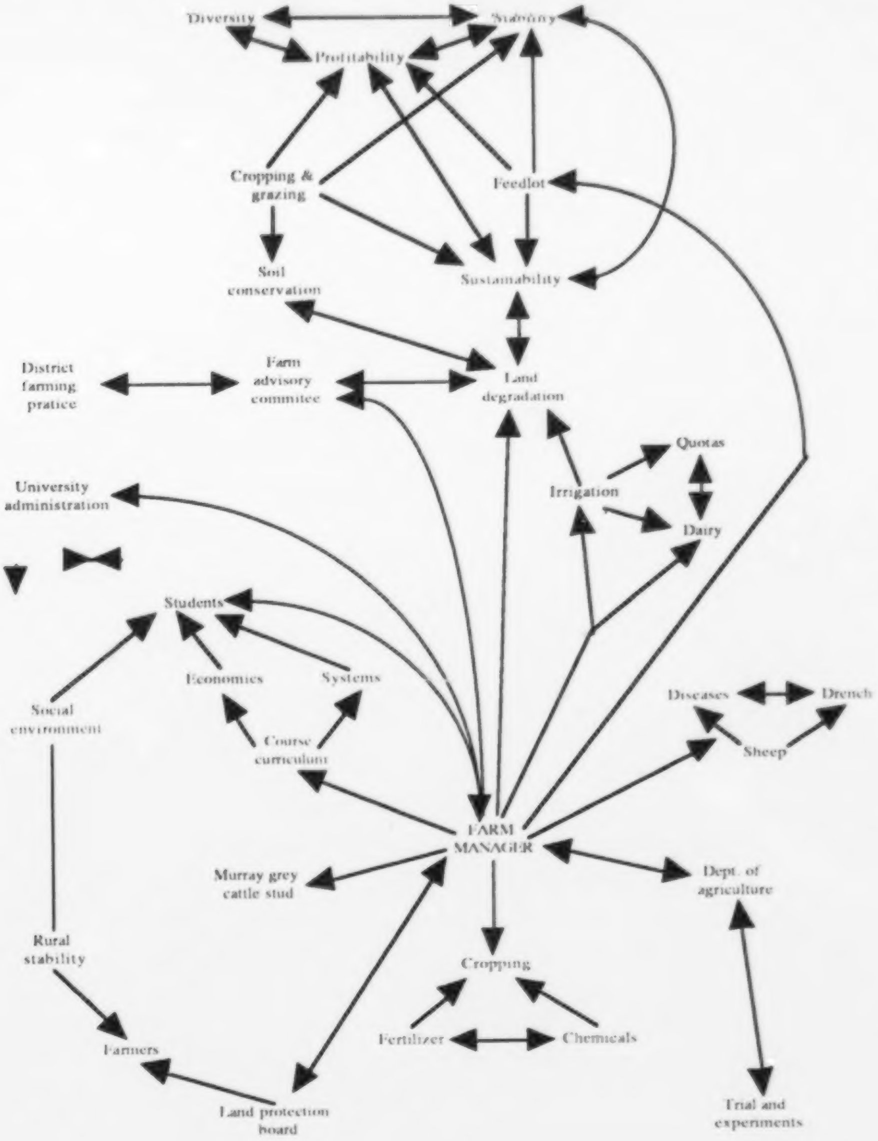
- the problem was seen in a broad perspective that involved people and institutions as well as physical resources and biological processes,
- it was recognised that people were a vital part of the problem and this was expressed in the conceptual models, and
- an important part of the analysis was to seek and define goals amongst the different interest groups.

Recommendations (stage 6 of Checkland's methodology) included changes to the farm production methods and to the relationships between key people and groups. In the first case the recommendations were to improve farm sustainability via monitoring and reassessing goals, soil conservation measures, pasture improvement, application of lime and tree planting. In the second case the differing needs and interactions of social groups in the system were analysed. The key groups included students, the local rural community, the farm advisory committee, and the university administration (Milvain,1991).

It is beyond the scope of this paper to give a complete explanation and user guide for the methodology. However, in the context of the research example referred to above it should be helpful for potential users to describe some of the strengths and weaknesses of the methodology which are exemplified in Milvain's report.

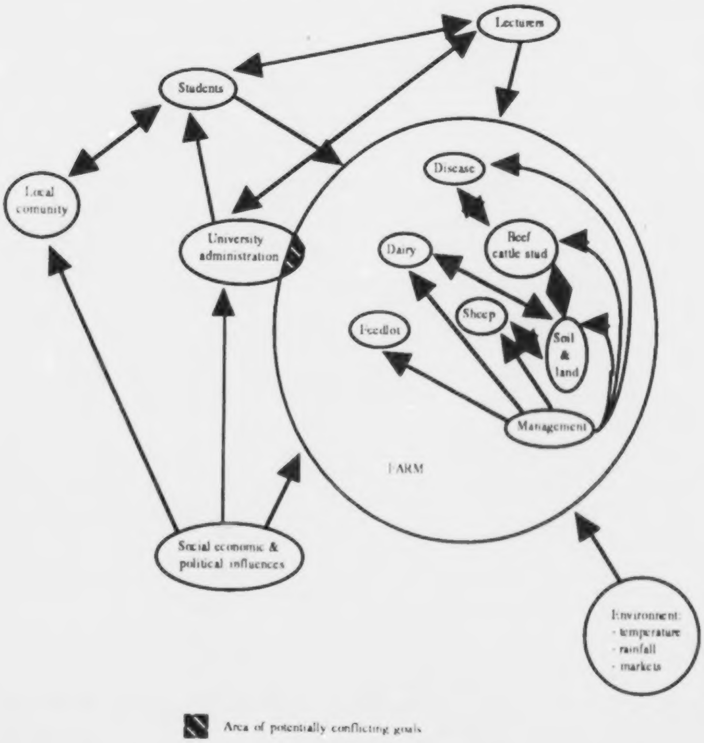
Most researchers begin at Stage 1 of the Checkland methodology although as mentioned earlier it is not necessary to follow the numeric sequence. In the students' study Milvain began with a rich picture approach (situation unstructured. stage l) which is shown in Figure 3.

Fig. 3: A Rich Picture of the University Farm and the Factors that Influence its Management (Adapted from Milvain 1991)


Diversity
Stability
Profitability
Cropping & grazing
Feedlot
Soil conservation
Sustainability
District farming pratice
Farm advisory commitee
Land degradation
University administration
Quotas
Irrigation
Dairy
Students
Economics
Systems
Social environment
Diseases
Drench
Course curriculum
Sheep
FARM MANAGER
Murray grey cattle stud
Dept. of agriculture
Rural stability
Cropping
Fertilizer
Chemicals
Farmers
Land protection board
Trial and experiments

At this point the researchers write down all possible factors and their interactions that could be important to the problem. An open mind and team approach is important so that no idea is omitted. Linkage and placement of words is important but the picture may be quite messy and it is up to the next stage to begin some refinement via structuring and elimination of irrelevant and minor features. Fig. 4 which coincides with stage 2 provides a good example. The focus on key features and players in the situation is clearer although the problem is still not explicitly defined. This stage should show a clear realistic picture of the situation. Milvain has done a good job with stages 1 and 2 (Figs. 3 and 4 respectively).

Fig. 4: The University Farm and Interest Groups (Adapted from Milvain 1991)


Lecturers
Students
Local comunity
University administration
Disease
Dairy
Beef cattle stud
Sheep
Feedlot
Soil & land
Management
FARM
Social economic & political influences
Environment:
- temperature
- rainfall
- markets
▨ Area of potentially conflicting goals

Below the broken line in Checkland's methodology (see Fig. 2) researchers move from the *real world* and step into the *abstract world* of systems thinking. Here the first task is to state clear concise definitions of the nature and goals of the key players in the problem situation. These are called "root definitions". They attempt to *name and describe* some of the systems which look like they could be important in the problem. The emphasis here should be on what the systems *are* not what they *do* (Checkland 1981, p.164). For example Milvain gives the following root definition for the university system as:

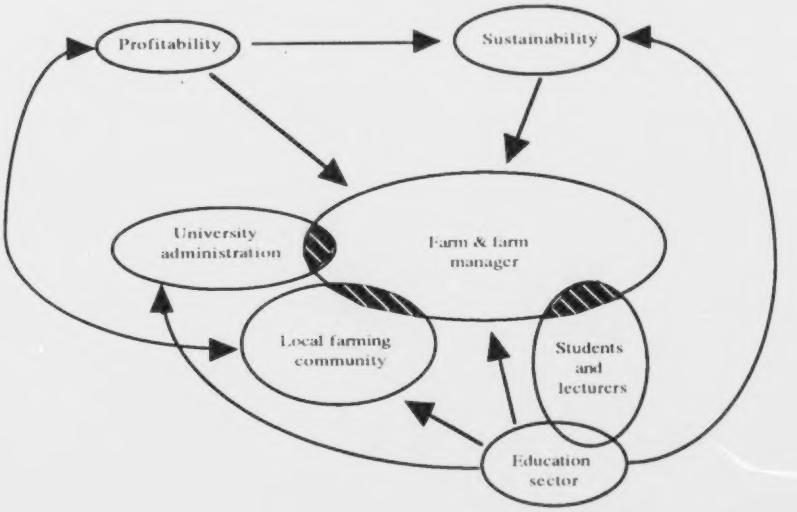
"A formal institution with education, social and economic influence which serves the higher education needs of people".

Wilson (1989, p.59) says that it may be necessary to attempt two or three definitions to achieve a satisfactory result. From experience it is also useful to oscillate between stages 3 and 4 as both are a mental challenge in systems thinking. Thus, there is a close relationship between the generation of root definitions and the systems modelling in stage 4. Milvain's definition is on the right track but does not say enough about the goals of the university system in relation to the farm.

To be effective, Checkland says that a root definition must be a concise expression of a human activity system, and should capture a particular view of it. However, it does not have to be brilliant or noticeably clear to be useful.

In stage 4 the researcher aims to create systems models. In each case these should describe the transformation process occurring. The root definition describes what the system is and the model illustrates how it works. There needs to be as many system models as there are root definitions and each should attempt to illustrate a structured set of logical activities defined in the root definition. Both definitions and systems models need to be radical in what they illustrate because if they are influenced by too much of the real world (i.e. stage 2) few improvements will be evident when it comes to the comparison of actual versus ideal (i.e. stage 5). The abstract thinking stage is the most difficult process of the Checkland methodology as it requires vigour and imagination. It is here that the researcher must apply formal systems thinking and concepts (stage 4). Further explanation of systems theory is beyond the scope of this paper, suffice to say that students who are schooled in the hard science view of agriculture, often have problems adjusting to the uncertainties of the systems approach namely stage 3 and 4. Fig. 5 illustrates this point, in that the researchers have failed to construct models with enough detail to pin point the problems and present radical alternatives.

Fig. 5: Systems Model of the Ideal Operation and Interaction of the University Farm (Adapted from Milvain 1991)



Checkland stresses the need for radical suggestions at stage 4 in order to guarantee the emergence of novel possibilities for improved systems. Where this is not apparent, then models and root definitions need to be examined for more radical possibilities (Checkland,1981 p. 170). In the example (Fig. 5) it seems that the researcher was not confident in systems analysis, thus few novel possibilities for improving the system were evident. An error is made in implying that "profitability" and "sustainability" are subsystems. They are really goals within subsystems. The main deficiency in the analysis is a lack of any detail within each subsystem and in the relationship between them. However, my purpose here is to comment on the difficulties in applying the methodology, rather than to criticise the work done.

Stage 5 depicts a re-entry into the real world to compare *what is* (stage 2) with *what could be* (stage 4). Checkland says that this comparison should be done together with the client who commissioned the study so that debate about changes can proceed (*i.e.* stage 6). In the example this was not done because the case studies were hypothetical and real clients were not involved. This could be one reason why analysis was lacking as discussion with clients should provide stimulation and insight. Stage 7 was omitted because it was beyond the scope of the students' task, however, it is interesting to note that Checkland gives little emphasis to stage 7, arguing that it is largely the client's responsibility rather than the systems analyst. The reverse would be the case for extensionists using their methodology.

So what is the value of Checkland's methodology? It could be argued that it is no different to more common problem solving models. However, this view is not supported by the experience and application in tertiary teaching at two Australian universities (Bawden *et al.* 1984 and Dunn, 1990). Some of the advantages of the Checkland methodology that we have found are described below.

First, it forces the problem solver to think in abstract and ideal terms. Wilson (1988) in his interpretation of Checkland's model describes this as *systems thinking about the real world.* It is particularly geared to dealing with *human activity systems* (*i.e.* soft systems) which are invariably complex and difficult to predict. Second, the researcher is forced to deal with problems which are often unsolveable and to accept instead that *situation improvement is* an acceptable goal. This is especially relevant in soft systems where goals depend on human perceptions and one ideal solution is rarely possible. A third advantage is that it prevents researchers from relying on their own perceptions and quick fix solutions. The classic example of this is the expert who says "I know what your problem is and this is how your can fix it!" In Checkland's methodology this represents a form of "short circuiting" i.e. jumping from stage 2 to stage 6. As such it avoids a proper consideration of all possible factors and processes. It doesn't consider key players (people) and the interactions that always occur in complex problems (stage 3). Furthermore it avoids the hard task of trying to understand how the whole system works i.e. it fails to answer the question: "What is really going on here?" (stages 3 and 4).

Systems thinking is essential for the proper operation of the Checkland methodology. While this often means that a new approach to problem solving is needed, it does not obviate the need for reductionist scientific investigations where they are appropriate. However, where complex problems and social phenomena are present systems thinking and a soft systems methodology are in our experience, very useful.

The Systems Extension Approach

The disciplines of extension and systems are relatively new in agricultural curricula. Their value lies in the fact that they both highlight the need to take account of the human factor in the study of agriculture and its improvement. Although agricultural economics also includes the human factor, its focus is rather narrow and emphasises efficient resource use and output distribution, thus limiting the discipline's capacity to fully account for human activity systems (Dillon,1976). Extension too has been found wanting in its ability to predict and enhance change in human activity systems especially as agricultural problems have become more complex (Nitsch,1982) and as environmental issues have become important in extension work (Fleigel and van Es,1983).

The need for a systems approach in the study of agriculture was described by Spedding (1982) who also advocated the use of models as a first step in understanding and communicating ideas about agriculture. In the absence of this approach it is noticeable that agricultural students initially think about agriculture from physical and biological perspectives and then overlay some elements of the human system. The flaw with this approach is that many complex problems, especially those that involve interaction between ecological and agricultural systems, come down to a conflict of human interests and goals and the persistence of natural systems. Farming is one example of an agricultural system that constantly requires management and control in order to achieve balance between productivity and sustainability. Historically extension has tried to fulfil farmers' management needs by advocating change and innovation as ends in themselves. This applied both in the national interest to expand production and also to prevent the emergence of a subculture of "laggard" farmers. When agricultural development is the goal, adoption lag is seen as the primary extension problem Rogers (1983). However, the adoption of technology also causes many problems and should not be seen as end in itself. Thus non adoption is no longer always a problem. Another slant on this is that agriculture has become "technology propelled" so that farmers tend to see problems in a narrow context and when they realise the complexities of the situation which includes the interests of other social groups, they lack the knowledge and skills to manage the situation. A useful analysis of this problem is developed by Röling *et al.* (1987) and is described below.

The thesis throughout this paper is that the research-extension environment needs to adopt new thinking and to develop new approaches. Some changes are evident but more needs to be done. The way forward is to use a soft systems methodology within new extension paradigms such as those described below. Interestingly, two of these paradigms have arisen from the need for new approaches in less developed countries. They would seem to be directly relevant to develop economies.

(a) Farming Systems Research (FSR). This is an approach used to give farmers ownership of the research and extension processes. It resulted from the realisation that benefits from the green revolution did not reach the smaller farmers (Simmonds 1985). The central idea in FSR is to involve farmers in research at the outset and to conduct research in the farming communities rather than on research stations. This avoids the top-down approach to research and extension and according to (Whyte 1983) it provides an opportunity for researchers to re-discover the value of a farmer's intimate knowledge of his or her own farm situation and the factors that influence its productivity. This thinking is part of a world-wide trend in recognising indigenous technical knowledge (ITK) and legitimising it for practical use. Recognition of ITK also helps retain worthwhile community values and resist undesirable outside cultural threats (Chambers *et al.*, 1989).

(b) "Farmer first" is a reversal of the conventional research paradigm. An example of the latter is embodied in the term "technology transfer", which is a process where scientists determine research priorities, generate the technologies on research stations, and transfer it to farmers via an extension service. The "farmer first" approach begins with the farm as the main focus and the farm family as the central experimenter. It advocates a complementary relationship between research stations and farmer knowledge. It grew out of the need to help resource poor farmers produce more and help sustain livelihoods for greater numbers of non-farm people. The same line of thinking is reflected in the "bottom up" approach which emphasises farmer knowledge, and where priority is given to local choices and ideas for research and extension (Chambers *et al.*,1989).

(c) The agricultural knowledge system (AKS) has been developed by Professor Neils Röling to model the forces that are propelling agricultural industries towards greater efficiency. Extension and research have an obvious role in the AKS network which provides a useful tool for analysing and diagnosing problems of information flow. However, AKS also has the facility to address the undesirable consequences of technology propelled change which are often not in the best interests of the community as a whole. A key problem discussed by Röling *et al.* (1987) relates to the ability, or inability of bureaucracies to control environmental degradation at same time as they service the needs of the agricultural industry.

(d) The "working with" extension strategy was explained by van den Ban and Hawkins (1988) as part of a three way strategy;
(i) doing to,
(ii) doing for, and
(iii) doing with.

Although each strategy has a place in extension the "working with" approach is more consistent with the philosophies of FSR and "farmer first". Group extension work especially when locally initiated by movements like Landcare are prime examples of this approach in Australia. This does not mean that in certain extension situations a "doing to" (i.e. regulatory) approach or a "doing for" (advisory) approach is not warranted. However, the important principle is to ensure that extension workers at the field and the bureaucratic level have the skills and knowledge to implement a "working with" approach when it is needed. Most complex human type problems respond to it at some stage.

(e) The Resource Model of Extension (Bardsley 1982). This model reminds extension workers that information flows two ways between them and farmers. Both are able to contribute and acquire knowledge from a common pool to which all sectors of the agricultural socio-economic system contribute.

These innovative paradigms show that the disciplines of systems and extension are adjusting to deal with new needs of farmers and the agricultural industry. Some of the thinking is evident in Australia research and extension institutions, but Korten *et al.*(1983) reminds us that it is important to ensure that the political and bureaucratic barriers are removed before attempts are made to introduce participatory research-extension models.

Conclusion

The task for professional agricultural workers in servicing the needs of farmers and rural communities has changed from the promotion of relatively simple innovations, to the understanding and assistance with complex problems in a rapidly changing socio-economic environment. Farm technology, economics and social structures have changed dramatically in the last 20 years. Environmental problems in agriculture, some induced by technology and modern farming methods are emerging at an increasing rate. It is these that are most challenging for trained agriculturists as there are no easy solutions. Simple extension strategies such as targeting an audience with a simple message are not appropriate for such complex problems. In these cases the social component of the problem often becomes the central issue. The way forward is to develop new extension paradigms based on an understanding of agricultural systems and problem solving methodologies that include relevant human factors. Situation improvement strategies based on soft systems methodologies which require a high level of social perception and communication skill are recommended. At the institutional level new extension paradigms are needed to drive the mission and strategies of relevant bureaucracies. The challenge for all those who work in and for agriculture and rural societies is immense.

References

AIAS. (1990). Outcomes of the conference, proceedings of a national conference and workshop on agricultural extension. Melbourne: Australian Institute of Agricultural, Science.

AMPT, P.R. and ISON, R.L. (1989). RRA has a role to play in developed countries. *RRA Notes,* Number 5.

BALIT, S. (1988). Communication is the message. *Ceres* 21(122): 13-15.

BAN, A.W. van den and HAWKINS, H.S. (1988). Agricultural extension. Harlow, U.K: Longman Scientific.

BARDSLEY, J.B. (1982). Farmers assessment of information and its sources. Melbourne: School of Agriculture and Forestry, University of Melbourne.

BAWDEN, R.J., MACADAM, R.D., PACKHAM, R.J. and VALENTINE, I. (1984). Systems thinking and practices in agricultural education. *Agricultural Systems* 13: 205-225.

BUTTEL, F.C., LARSON, O.F. and GILLESPIE, G.W. (1990). The sociology of agriculture. New York: Greenwood Press.

CHAMBERS, R., PACEY, A. and THRUPP, L.A. (1989). Farmer first: farmer innovation and agricultural research. London: Intermediate Technology Publication.

CHECKLAND, P. (1981). Systems thinking, systems practice. Chichester: John Wiley and Sons.

CONWAY, G.R. (1985). Agricultured ecology and farming systems research, in J.V. Remenyi (ed) Agricultural systems research for developing countries, proceedings of an intemational workshop. Canberra: ACIAR No. 11.

CONWAY, G.R. (1986). Agroecosystem analysis for research and development, Bangkok: Winrock International Institute for Agricultural Development.

CONWAY, G.R. (1987). The properties of agroecosystems, *Agricultural Systems* 24:95-1 17

DILLON, J.L. (1976). The economics of systems research *Agricultural Systems* 1 (1):5-22.

DISKEN, N., FRASER, D. Rogers, J. TARRAY, R. and WOODFULL, J. (1988). Landcare: An evaluation of the group approach to caring for the land. Melbourne: Department of Conservation Forests and Lands.

DUNN, A.M. (1990). Extension and agricultural systems in a conservation age in U. Nitsch and M. Andersson (eds). The Role of Agricultural Extension, proceedings of the 9th European Seminar on Extension Education. Uppsala: Swedish University of Agricultural Sciences.

DUNN, A.M. (1991). Agriculture, ecology, people and the environment: A challenge for educators *Rural Society* 1(1): 5-9.

DUNN, A.M. and FRANCIS, R.G. (1991). Comments on: Decade of landcare - draft plan for NSW. Sydney: unpublished submission to the Department of Conservation and Land Management.

DUNN, A.M. and GRAY, I.W. (1991). Farmer perceptions of dryland salinity in Young Shire, NSW (submitted to): *Journal of Soil and Water Conservation*.

FLEIGEL, F.C. and VAN ES, J.C. (1983). The diffusion adoption process in agriculture: changes in technology and changing paradigms, in G.F. Summers (ed) Technology and social change in rural areas. Boulder, Colorado: Westview Press.

KORTEN, D.C., UPHOFF, N. and WHYTE, W.F. (1983). Bureaucratic re-orientation for agricultural research and development in W.F. Whyte and D. Boynton (eds) Higher yielding human systems for agriculture. Ithaca: Cornell University Press.

MILVAIN, A. (1991). Unpublished agricultured systems report. Wagga Wagga: School of Agriculture, Charles Sturt University.

MOSHER, A.T. (1969). Creating a progressive rural structure to serve a modern agriculture. New York: Agricultural Development Council, Inc.

NITSCH, U. (1982). Farrners' perceptions of and preferences concerning agricultural extension programs. Uppsala: Swedish University of Agricultural Sciences.

NITSCH, U. (1989). The legitimacy of the agricultural extension service, in U. Nitsch and M. Anderson (eds) The role of agricultural extension, proceeding of the 9th European seminar on extension education. Uppsala: Swedish University of Agricultural Sciences.

RÖLING, N.G. (1987). Wither rural extension. Canada: Department of Rural Extension Studies, University of Guelph.

RÖLING, N.G., JIGGINS, J. and CARRIGAN, D.A. (1987). Extension as part of an agricultural knowledge systems in M.D. Littman (ed) Rural extension in an era of challenge proceedings of Australasian agricultural extension conference. Brisbane: Queensland Department of Primary Industries.

ROGERS, E.M. (1983). Diffusion of innovations. New York: The Free Press.

RUSSELL, D. (1990). A critical review of rural extension, proceedings of a national conference and workshop on agricultural extension. Melbourne: Australian Institute of Agricultural Science.

SIMMONDS, N.W. (1985). Farming systems research - A review. Washington: World Bank Technical Paper Number 43.

SPEDDING, C.R.W. (1982). An introduction to agricultural systems London: Elsevier Applied Science.

WILSON, J. (1988). Changing agriculture: An introduction to system thinking. Kenthurst: Kangaroo Press.

WHYTE, W.F. (1983). The farming systems approach: The rediscovery of peasant rationality in W.F. Whyte and D. Boynton (eds) Higher - yielding human systems for agriculture. Ithaca: Cornell University Press.

Extension Strategies and Methods

Ideal Types of Extension System: A Theoretical Framework for the Qualitative Analysis of Extension Organizations

Fernando Sánchez de Puerta T.[2]

Most European governmental Extension systems (EGESs) date back to the nineteenth century. The fundamental reason for the emergence of these EGESs lies in the recognition on the part of the governing authorities and/or the enlightened of the need -or the expediency of intervention in a matter which was initially a private activity: Agricultural Extension. However, despite their common origins, diversity was a key feature of the ensemble of government Extension systems consolidated in Europe during the first half of this century.

During the fifties and sixties most of the EGESs came to resemble each other in their organisational structure, operative methods and even in their work-philosophy and, during this period, all of them enjoyed "years of plenty", the Green Revolution and North American Aid being the key to this coincidence.

Over the last two decades the EGESs have begun to undergo changes in different directions. A common feature of these changes has been the attempt to secure real involvement of the farmers and/or their associations in the management and financing of Extension activities, hitherto managed and financed in most cases by the Ministries of Agriculture. It can therefore be said that the majority of European Extension systems are currently experiencing processes of crisis.

The interest of the kind of work presented here may lie in the need for reflection on the extension praxis, in our field of work -Europe-, at a time when, to the process of crisis mentioned above, we must add the fact that the European Economic Community has begun to implement a Policy of Agricultural and Rural Information (the MIRIAM Programme), which affects the future of the EGESs. We believe that the retrieval of the History of Extension, carried out in an ordered fashion, could help us to reflect upon the issue before facing the challenge of the future.

So that this work may serve as a guideline for the aforementioned reflection, we are seeking to achieve the following objectives: on the one hand, on the basis of a comprehensive historical study of Extension systems, to define a theoretical framework for the qualitative analysis of extension practice. This theoretical framework will be made up of: (i) ideal types -in the Weberian sense- of Extension system and (ii) processes of the historical context by which a real system comes to resemble an ideal type. On the other hand, with the sole purpose of illustrating the application of the defined theoretical framework, we will carry out a partial analysis of several real-life cases of EGESs.

---

[2] Fernando SANCHEZ DE PUERTA T. is Dr. Agricultural Engineer, Honorary Collaborator to the Department of Agricultural Economics and Rural Sociology. University of Cordoba, and Technical Adviser to the General Administration of Agricultural Research and Extension, Department of Agriculture and Fishering, Junta de Andalucia. Seville (Spain). English translation by Jayne COTGREAVE, B. A. on Hons.

The Theoretical Framework

Alexander V. Chayanov (1888-1930?) is, in my opinion, the father of Extension as a science in spite of the fact that the sentence passed by the Stalinist regime which had him confined to Siberia cut short his intellectual career just when he was beginning to draw general conclusions from his isolated studies on the issue which concerns us at this Seminar[3].

With a view to drawing up a proposal for the remodelling of the Extension system which was in operation in Russia in 1918 and had been since the end of the 19th Century -Social Agronomy ("obscestvennoj agronomii")- Chayanov analysed several European Extension systems and the North American system. The general conclusion drawn from this analysis was the following:

> *"The existing types of Extension organisations have developed, not through the logical development of any organisational idea, but rather through a historical evolution which depends on and adapts to a whole series of conditions of space and time. Thus, in different countries and even in different regions within the same country we come across different organisational types of extension work, developed around the diversity existing in state and social structures, in the struggle of social groups and classes and, in short, in the wider structure of the organisations which promoted and constructed Extension. Nor is it uncommon to observe pathological organisational forms or even the existence of parallel extension organisations hostile towards each other and in conflict. Moreover, the form of Extension organisations does not remain ossified but is in constant motion from one phase to another in its evolutionary development, undergoing modifications due to the influence of changes in the content of extension work and even to the influence of the social and political conditions of its existence"[4] (CHAYANOV, 1988: 194-95).*

---

[3] As an intellectual and through his work, Chayanov is known, above all, for his theories on peasant economy. However, he dedicated no less effort to Extension, although in his times it was not regarded as an academic discipline. Already in his doctoral thesis on Agricultural Economics, presented in the Agricultural Institute of Moscow in 1910 and entitled *"Southern Limit of the Diffusion of Triennial Rotation in Russia"*, Chayanov reveals here his inclination for this subject, although it will be the positions he held first in Russian and then in Soviet governmental circles, in organisms related to Agriculture, which caused Chayanov to become concerned about both the training of technical agronomic cadres and about the way in which the latter passed on their science to the farmer. In this respect, he will write the *"Report on the activities of the Congress on Agronomic Aid for the Population"* (1911), followed by *"Problems inwolved in the training of agronomists"* (1914) arriving at *"Fundamental ideas and methods of Social Agronomy"*, published in 1918 and reedited in 1922 within the Commissariat of Agriculture of which he was Under Secretary at that time. The exact reference of the work quoted is: CHAYANOV, A.V. (1918): *Osnovnye idei i metody raboty obscestvennoj agronomii*. Moscow. There exists an old translation into German of this book: CHAYANOV, A.V. (1924): *Die Sozialagronomie, ihre Grundgedanken und Arbeitsmethoden*. Berlin. Paul Parey. Recently a translation into Italian has been published: CHAYANOV, A.V. (1988): *L'economia di Lavoro Scritti Scelti* (Translation and comments by F. Sperotto). Milan. Franco Angeli. pp: 175-220).

[4] Chayanov refers to "extension" as "social agronomy" which was the name given to the Russian Extension Service in 1918. With a view to avoiding confusing the reader I have subsbtituted "social agronomy" for "extension" in the quotation reproduced here.

This quotation, taken from what could be the first overall attempt to formulate theory within Extension, contains three ideas which justify the conception of the theoretical framework which we will put forward here. These ideas are the following:

- The ***diversity*** existing in the Extension systems not only on an international level, but also on an inter-regional level or even within the same area of activity (<<in different countries and even in different regions within the same country we come across different organisation types of extension work>>).
- The ***multilineal evolution*** (following different lines) of extension systems in the world at the same time (<<historical evolution which depends on and adapts to a whole series of conditions of space and time>>).
- The ***influence of the historical context on the configuration and evolution*** of a national or regional Extension system (<<state and social structures, the struggle of social groups and classes, the structure of the organisations which promoted and constructed Extension, the content of extension work, social and political conditions of their existence. Parallel organisations, hostile towards each other and in conflict>>).

Consideration of the historical dimension already noted by Chayanov in his work in 1918- as central to the analysis of the extension praxis is the fundamental objective of this paper. We should clarify, before going any further, that "historical" here will be understood as meaning relative to the social- political-economic context which surrounds the origin and existence of a social institution.

Much work has been carried out in which the historical dimension has been considered when analysing the extension praxis in one or several countries[5]. At present, coinciding with the arrival of the systemic paradigm in the field of Extension, history has ceased to be important in the analysis, no longer of the present, but of the future of national Extension systems. The creation of "normative models" of Extension systems (which Chayanov would call <<any organisational idea to be developed logically>>) is the clearest example of this unhistoricity in the Extension Theory put forward by some present-day schools.[6]

---

[5] As regards works which examine the Extension system of a specific country incorporating the historical dimension, we can mention the following for Ireland JONES, Gwyn E. (1982) "The Clarendon Letter" in JONES, G.E. and ROLLS M. (eds) *Progress in Rural Extension and Community Development*. Vol, 1. London John Wiley & Sons, pp: 19; for the United Kingdom HELME, W.H. (1975) "The Agricultural Development and Advisory Service" *in Journal of Agricultural Economics*, Vol.16, No.l, pp: 53-59; for Denmark: "Report on Denmark" in O.E.C.D.(ed): (1981): *Les services de vulgarisation agricole dans les pays membres de l'OCDE*. Paris. Organization for Economic Cooperation and Development; for France: MULLER, Pierre (1984): *Le technocrate et le paysan*. Paris. Editions Ouvrières; GERBAUX, F. and MULLER, P (1984): "La naissance du développement agriole en France" *in Economie Rurale*, No. 159, January-February. pp 17-22; and ROLLAND, L. "L'histoire de la vulgarisation agricole avant 1966" in *Economie Rurale* N° 159, January-February. pp 11-16; for Italy: BENEDICTIS M. de (1984): "Les Services de vulgarisation dans une agriculture hétérogène, le cas d'Italie " *in Economie Rurale*, No. 159, January-February. pp 51-57; for Portugal: LOPEZ RIBEIRO, António (1974) "A Extensão Rural em Portugal" in Instituto Universtário de Évora (ed) *Primeiro Seminário Universitário de Évora. Extensão Rural*. Évora. I.U.E., pp l95- 210; for Holland ZUURBIER, P. (1984): *De Besturing en Organisatie van de Landbouwvoorlichtingsdienst*. Wageningen Agricultural Universty of Wageningen; for Spain: FERNANDEZ CLEMENTE, E. (1986) Joaquín Costa y la Enseñanza de la Agricultura en *la* España del S. XIX" presented at the conference: *Joaquín Costa: la agricultura, los agricultores y su formación*. Madrid Sept 26th-27th; and SANCHEZ DE PUERTA, F. (l99O) "La Extensión como instrumento para el desarrollo: Aproximación al caso espanol". Doctoral Thesis. Department of Agricultural Economics and Sociology. Universty of Cordoba (mimeo); for the United States SANDERS, H.C.; ARBOUR, M.B.; BOURG, T.; CLARK, R.C.; FRUTCHY, F.P. and JONES, J.HJr. (1966) *The Cooperative Extension Service*. London Prentice-Hall. With respect to studies of an international nature we have the work of Jones for the nineteenth century: JONES, G.E. (1981) "The Origins of Agricultural Advisory Services in the Nineteenth Century" in *Social Biology and Human Affairs*. Vol. 48, N°2. pp 89-106; and works by the O.E.C.D. and the FA.O. which analyse the evolution of Extension in its member countries, for example: FA.O. (ed) (1971): *La Extensión Rural en América Latina y el Caribe*. Rome. Food and Agriculture Organization of the United Nations;

Consideration of the historical dimension in any analysis interferes with the production of results which take in that historical dimension and which, at the same time, have some subsequent utility beyond the result obtained from the work itself. However, there does exist a methodological tool which facilitates the drawing of theoretical conclusions with some practical application to real cases. We are referring here to the concept of *ideal type* defined and employed by the German social scientist Max Weber in his well-known, comprehensive work.

The aim of Chayanov's work referred to above was not to analyse or compare Extension systems, but rather to provide an alternative to the system that existed in Russia in 1917. We, however, are not seeking to find an alternative to current European Extension systems, but rather to put forward a theoretical framework which would permit an isolated or comparative analysis of the same. However, we are totally in agreement with Chayanov in his considerations on the importance of the influence of the historical context on Extension organisations. We will therefore take this historical context as the mainstay of the creation and application of our theoretical framework.

As is already known, the concept of <<ideal type>> was defined by Max Weber and occupies a central position in his epistemological doctrine, which is based on the search for syntony between History and Sociology. As we will see, in the construction of our ideal types of extension systems we have sought to follow the methodological recommendations of Weber, that is to say, we have used sociological and historical perspectives simultaneously[7]. It

---

O.E.C.D. (ed) (1969): *La Vulgarisation Agricole. Evolution dans les pays membres de l'OCDE 1968*. Paris; (1971): *La Vulgarisation agricole dans les régions d'agriculture avancée*. London; (1977): "Enquête sur les services de vulgarisation dans les pays membres de l'OCDE. Paris; and (1981): *Les services de vulgarisation agricole dans les pays membres de l'OCDE*. Pans. Organization for Economic Cooperation and Development.

[6] In effect, the normative models or i"deals" -in a positive sense- of Extension organization, which should surpass the well-known T & V (Training & Visit (BENOR and HARRISON, 1977), ironically called <<Tragic & Vain>> at present), are based on a static analysis of reality (seeking a compendium of virtues in Current Extension systems by measuring their quanbfiable and computerizable characteristics). In addition, a unilinear perspective of the future evolution of the extension praxis is used (seeking to put the same model into pratice in clearly different contexts). An exception to the above is the survey designed by Blum and Isaak (1988) to adapt the T & V system to changing <<socio-cultural and agro-ecological conditions>, which does not mean that the model to be implemented in each case is not essentially the T & V model. For a more detailed explanation of the process for obtaining normative Extension models, which is carried out at the University of Illinois -as part of the programme INTERPAKS, directed by Burton E. Swanson- and the Technical University of Berlin see ROLING, N.G. (1988) *Extension Science Information Systems in Agricultural Development*. Cambridge. Cambridge University Press. pp 203-204. A criticism of the T & V model, so widespread in the sixties and seventies and still receiving financial backing from the World Bank, is found in AXINN, G.H. (1988) "T & V (Tragic, and Vain) Extension?" in *INTERPAKS Interchange*. Vol. 5 N°3, pp 6-7.

[7] On this point we should bear in mind that with this work it is not just a question of following Weber blindly, but rather of answering the calls for the recovery of the Classical Social Theory, made recently by most

is in this way that we have arrived at a definition of different ideal types of extension system corresponding to different socio-historical contexts[8].

"Ideal" should not be taken here as meaning "normative" or "optimal", but as "pure" or "abstract", since Weberian ideal types were <<stylised reconstruction's of reality in terms of accentuated typical elements or features>> (WEBER, 1973).

In order to arrive at a definition of an Extension system ideal type or types it is necessary to take as a basis the most comprehensive study possible on extension practice in different geographical regions and in different time periods[9]. Such a study involves embarking on a process of analysis and synthesis of ideas which allows us, in the first instance, to detect useful indicators for the characterisation of different Extension systems[10]. Once these

---

theoreticians -such as Teodor Shanin (1988), Howard Newby (1987) or Harriet Friedmann of Rural Sociology, with which Extension was closely connected in its origins as a scientific discipline.

[8] Weber postulated that in order to study society and culture it was necessary to <<melt down the elements which made up their particular structure and with them form an ideal type, so that when we focus on a particular case, we know which features were specially susceptible of observation and exact measurement>> (LUCAS), 1986 (125-126). In Weber's own words: <<An ideal type is obtained by accentuating unilaterally one or several points of view and stringing together a multitude of phenomena given in isolation, which are diffuse and discrete, found in small or great numbers, in different places, and which are ordered according to the preceding points of view chosen unilaterally, to form a homogeneous framework of thought. No framework of such conceptual purity is to be found anywhere empirically: it is a utopia which poses histiographical work the task of finding out how near or how far reality is from that ideal framework...This concept, employed with precaution, affords a specifc service for the purposes of research and illustration>> (WEBER, 1973:79). The concept of the ideal type which we will use is mid-way between abstract ideal types (for example, <<bureaucracy>>) and concrete ones (for example, <<homo economicus>>) defined by Weber, since our objectivee is the characterization of a specific ensemble of social institutions (an extension system).

[9] The in-depth study of extension systems in different countries, of the historical contexts in which they are contained and the germ of the theoretical framework presented in this work appear in the first part of the afore-mentioned doctoral thesis (SANCHEZ DE PUERTA, F. (1990): "La Extensión como instrumento..., op.cit. "La Extension como ciência, tecnología y prática en una perspectiva historica e internacional". pp: 61- 486).

[10] In addition to this result, we may also draw conclusions about the evolution of the extension praxis. In the afore- mentionid doctoral thesis (SANCHEZ DE PUERTA, 1990), the defnition of a periodization of extension was arrived at. The periods spanned by the extension praxis, according to the results of the above-mentioned research, are the following: <<(i) The "itenerant agriculture teachers" stage (19th Century - beginning of 20th Century, which corresponds either with the recognition - on the part of the enlightened and/or farmers- of the need to develop, in a practical way, the knowledge on agriculture obtained in higher agricultural research and education centres (the <<uluseful knowledge of agriculturee>>), or with the need to reconstruct certain agricultural systems after an agricultural catastrophe generally brought about by the uncontroiled diffusion of crops (the potato in Ireland, the vine in France and Portugal, cotton and the potato in the United States, etc.); (ii) the institutionalizabon stage of Extension as a governmental service (1910-1920), which corresponds with the acknowledgement -by officials- of the need to enforce scientific rationality in the countryside, and it leads to the setting up of the first Agricultural Advisory Services in Europe and of the Cooperative Extension Service in the United States. They operated idiosyncratically (in accordance with different extension work approaches) up until the end of the Second World War (1945); (iii) The stage involving exportation of the North American extension experience to other countries (1945-1960), which corresponds with the acknowledgement by the United States of the effectrveness of "their" extension as an instrument to carry out agricultural modernization. In this exportation of American extension, international organizations for cooperation and development (OECD, FAO, USAID, etc.) have played an important role; (iv) The expansion stage of the national extension services of developed countries on the one hand, and the normative models (Training & Visit) designed for the underdeveloped countries on the other (1960-1970). This phase conrresponds with the climax of the modernization process of agriculture in the developed countries; (v) The stage of the crisis of the national

indicators have been detected, we can select a minimum set of them and choose the indicator most suited to our objectives. In our case, we have selected a minimum set of qualitative indicators for the characterisation of extension systems[11].

As is already known, the characterisation of an extension system may be carried out in accordance with diverse parameters[12]. We have selected a minimum set of qualitative indicators to carry out this task. Opting for an analysis of a qualitative nature may, in our opinion, circumvent shortcomings or, at least, complement analyses of a quantitative nature which are already available to us[13]. We could say, at this point, that we have made a choice preferring

---

extension services (1970-1980), which conrresponds with the "end" of the agricultural modernization process driven by the Green Revolubon; and (vi) The present day (1980-1990), a stage in which organized extension actions are being reinterpreted, either with a view to these actions providing a raison d'être for organizations which are seeking to prolong their existence now that the objectives which brought about their creation have been achieved, or in answer to new contexts such as conservation of the environment, alternative forms of agriculture, the privatization of information or the combined development of computer science and the mass media (telematics)" SANCHEZ DE PUERTA (1990): "La Extension como instrumento..., op.cit. pp: 688.

[11] We should point out that the term <<indicator>> is not used here in the same sense as it is used in Sociology to define <<social indicators>>. By <<indicator>> we understand <<a variable which lends itself to an operational definition, not of its own underlying concept, but rather of another which, because of its logical structure or a lack of infonmation, does not allow direct measurement>> (FOESSA, 1967). The term is used in a broader sense, since the indicators that we are using here refer to <<macro- variables>> -in the sense in which Bunge undcerstands this idea (BUNGE, 1985)- and the values that we are seeking to obtain are aproximate values. Furthermore, the qualitative indicators that we will use are <<descriptive indicatorsl>> in the sense in which De Miguel gives these terms, that is to say, indicators <<in which the essential hypothesis is that of anticipating stabsbd regularity in the data>> (FOESSA, 1967).

[12] Works aimed at the characterization of extension systems employ different types of indicators. In general, such works put forth analyses based essentially on the measurement of quantifiable concepts, although qualitative analyses have been canied out on extension practice. For purely heuristic purposes, we will divide the inidcators commonly used in the characterization of extension systems into two categories: <<quantitative indicators>> and <<qualitabve indicators>>. We call quantitative indicators those which measure quantifiable variables or sets of variables and are reflected as numerical data (for example, the indicator "size of an extension service" arpressed by the number of people employed by an extension organization). We call qualitative indicators those which refer to qualitative or ordinal variables and to comparative concepts such as those which are not normally expressed in numerical data, although they may be simplified into quantifiable concepts to be "measured" using <<indicators>> in the sense in which Sociology uses the term. In general, when it is necessary to put forward a simplified conclusion of the "value" of a qualitative indicator or if one should wish to compare the "values" in different extension systems, categories which are more or less precise are used such as "high", "medium", "low", "sufficient", "poor" or "null". An example of a qualitative indicator, in the sense in which this concept is used here, could be the "degree of coordination berween research and extension". This qualitative indicator could be arpressed by the number of contacts of researchers with extension advisors, but normally it is refened to as: optimal, high, low, sufficient, poor, null, etc., thmugh the qualitative analysis of a set of facts related to this coordination. Another example of a qualitative indicator would be the <<objectives>> indicator of an extension service, which is obviously difficult to quantify, for which simple category levels are not established, instead it is normally "measured" by means of ideas set down in documents issued by the extension service to be characterized or the policies on which the system bases its operational strategy.

[13] The quantitative indicators most commonly used in the analysis of extension systems normally refer to the following features of said systems: (a) descriptive aspects of the organizational structure of the system (such as the size of an extension service expressed by the total number of persons employed or by the number of persons in the different positions within the organintion); (b) financing of extension (for example, public acpenditure on extension in a country with relation to final agricultural output); and (c) measurements of the activities of extension services (for example, the number of visits to farmers or of courses of one type or another given over a certain period of time). With quantitative indicators, temporal series are normally established which show the evolution of extension services with respect to one or several features of the latter. This kind of indicator has

<<a gross measurement of the variable in which we are interested to the accurate measurement of a variable which only resembles the one that interests us>>, in answer to the alternative put forward by Gross (quoted in FOESSA, 1967).

The selected set of five indicators offers two advantages with respect to our objectives, in addition to the advantage of providing the qualitative characterisation of an extension system. Firstly, it allows us to define extension system ideal types. Secondly, it facilitates comparison between real extension systems (both between systems belonging to different countries, and between different phases of development of the same system) and comparison between real systems and ideal types of extension system.

Each indicator refers to one or several features of an extension system essential to the definition of the latter.

The study of the reality of extension reveals the persistence of certain "values" -in certain periods and/or different geographical spaces of extension practice- for each of the indicators that we will use. We will call the abstraction of these persistent values "typical values" of an indicator.

With certain sets of typical values we may define -by means of a comprehensive intuition process- an ideal type of extension system. We can therefore say that an ideal type of extension system is a hypothetical construction, created for purely heuristic purposes, and which is formed by emphasising certain empirically observable aspects of the institution that interests us, that is to say, by defining typical values.

---

been used, fundamentally, by Burton E. Swanson and his collaborators at the University of Wisconsin (1975) in surveys on representatives of national extension organisms. In these surveys measurable variables were used through specific questions put to the civil servants of these institutions. In general, in such studies, the characteristics of the system under consideration are analysed in an isolated fashion, that is to say, without taking into account, for example, the relationship between extension and research or the degree of integration of extension policy in the overall agricultural policy of the country. In general, it can be said that the analyses of extension systems based essentially on the use of indicators of a quantitative nature which, in the case of governmental or semi-governmental systems, are normally drawn up according to data taken from yearly reports issued by the services themselves and offer little information on the real functioning of an extension service. Some authors have used quantitative indicators to analyse governmental extension services in isolation and have in fact obtained little information using this procedure. For example, Peter Zuurbier, in research on the Dutch Extension system, used only quantitative indicator to investigate the causes of the evolution of the dimension of the governmental extension service of his country. He collected data on: the number of persons employed by a national extension service, public expenditure on extension and total agricultural income. The conclusion of Zuurbier's work was the following: <<The historical analysis of the (Dutch) agricultural extension service reveals periods of expansion and regression. Expansion took place at times and under circumstances in which extension received a large part of the national agricultural budget, but while income from agriculture, in general, was declining; its decline occurred at times and under circumstances in which income from agriculture was increasing and when technid development was favourable. Its decline was also accompanied by limited representation of the extension service at national level,, (ZUURBIER, 1984:153). Zuurbier did not discover any correlation between public spending on aextension and income from agriculture as he had established in the form of an inibal hypothesis in his doctoral thesis. However, he did find an explanation for the evolution of the size of the Dutch public extension system in the representation of this institution at national level>>. A qualitative analysis of the relationship between the representatives of Dutch extension and Ministry of Agriculture officials would probably have allowed him to offer more in-depth conclusions.

Figure 1 shows the process through which we obtain the ideal types.

We will now define the indicators and the typical values of each of them, and the ideal types which emerge as a result of the combination of certain sets of typical values.

Indicators and Typical Values

Objectives

Within the objectives indicator we will examine several features of an extension system related to the essence of the strategy followed by said system in its running. As a compendium of these features we will use the quality we have named scope of objectives, since, as we shall now see, there exists a correlation between the scope of objectives and the other qualities of an extension system included in what we call "objectives".

The qualities we are referring to are: (a) scope of objectives; (b) type of actions; (c) knowledge grounds; and (d) integration of objectives.

Scope of objectives

This refers to the aspects of rural society and its context which one is seeking to transform through the work of the extension system.

Type of actions

This refers to the essence of the extension processes. In simplified form, these processes may be classified as: information, advising, education and animation.

Knowledge grounds

These are the large packages of informative content on which the different extension systems base their work. These areas may be divided up into the following simplified groups: technical, economic and social.

Integration of objectives

This refers to the degree of co-ordination existing between the extension policy followed by a system and the rural or agricultural development policy of the region, country or community of countries in which it operates.

There are at least three typical values for the indicator "scope of objectives" or simply "objectives". These are: *rural, agricultural* and *agribusiness*.

An extension system will be characterised as **rural** extension, on the basis of the objectives indicator, when the former adopts a broad concept of rural development, that is to say, when its objective encompasses the overall development of rural society and its context, when agriculture is considered to be one of the possible fields of extension work because it is the activity carried out by a part of rural society. In addition, it will be assumed that agriculture is -for those who practice it- their way of life rather than a profession.

An extension system will be characterised as **agricultural** extension when its goals are fixed on the development of agriculture as a productive activity (including in the concept of agriculture cattle-raising, forestry, etc.), agricultural technology and the management of agricultural enterprises being the main focus of attention.

In the event that agriculture is considered, by an extension system, to be not only an economic sector formed by professionals -as in the case of the agricultural scope of objectives-, but also an integral and inseparable part of a wider structure comprising the agricultural sector, the industry of agricultural inputs and the food processing sector, a structure which encompasses the concepts of the agro-industrial sector or the agro-food complex, then we will talk about an extension system with an **agribusiness** scope of objectives. A system which corresponds to this characteristic will address itself selectively to different branches of agro-food or agro-industrial activity.

The three typical values of the scope of objectives indicator roughly correspond with the three extension models defined by the Organisation for Economic Cooperation and Development in its works (OECD, 1981). In effect, what we have called scope of objectives: rural, agricultural and agribusiness, is the equivalent of the models: transfer of technology to individuals, enterprise and branch of activity respectively, as set out by the OECD.

As regards the relationship between the scope of objectives quality and the other three qualities which make up the global indicator "objectives" -defined above-, we can say that, as we move from a rural scope of objectives to an agricultural one and to an agribusiness one: (a) the prevailing types of action go from animation to information in the order in which we have stated them; (b) the knowledge grounds on which the work of an extension system are based go from the technical and social to the technical and economic, with a greater presence of the economic areas in the case of an agricultural scope of objectives; and (c) the integration of objectives increases.

Participation

This indicator refers to the degree of involvement of the State, farmers' associations and the private sector in the financing and management of the extension system.

With the term "participation in management" we are referring to both co-operation in the detection of problems and in feedback for the control and appraisal of programmes *(instrumental participation* of the target clientele), and the fixing of extension system objectives which is carried out in the decision-making bodies of said system or other decisions such as appraisal and screening of agents *(political participation).*

There exist at least three typical values for the participation indicator.

The activity of an extension system measured using the participation indicator may take on a value nearing or coinciding with one of the following typical values: *governmental, semi-governmental* or *private*.

We will say that the measure of participation is **governmental** when the extension system is funded and managed entirely by the State. In this case, the target clientele participates in the detection of problems and in feedback for the control and appraisal of programmes. As regards participation in the fixing of objectives, this is partially carried out, normally through the presence of target clientele on some kind of local extension board.

We characterise an extension system as being of **semi-governmental** participation when the State and agricultural associations (co-operatives, OPA, etc.) contribute jointly to the funding and/or management of the system. In this case, the participation of the target clientele in the fixing of objectives carries greater weight than in governmental participation systems. In some cases the target clientele chooses and even assesses the extension agencies' personnel.

An extension system is characterised as being of **private** participation when the State or States (in the case of international organisations for co-operation and development) are not involved in the funding and management of the system. This would include, for example, extension systems promoted by Non- Governmental Organisations (NGOs) the operation of which does not depend on funds from the above-mentioned international organisations. The degree of participation in the fixing of objectives varies greatly in this case. Thus, the systems promoted by NGOs usually regard the participation of the target clientele as an essential element of their strategy (political participation), while the systems managed by agricultural input firms or by the information sector are only looking for feedback as they have economic and not social objectives (instrumental participation).

Articulation

By articulation of an extension system we are referring to the degree of co-ordination between the extension agencies comprising the system and other institutions whose work is related to Agriculture, Public Health, Consumption, etc., especially those involved with Agricultural Research -the Research Agencies-'

The typical values of the articulation indicator which we will define are: *autonomous*, *extension/research* and the *information system*.

We will say that an extension system is **autonomous** when its strategy does not contemplate the relationship of the extension agency(ies) with other agencies belonging to the information and rural knowledge system in which it is situated, either because the latter do not exist in the context in which it is carrying out its work, or because they are incorporated into the extension system.

In exceptional cases, an extension system seeks autonomy with respect to other agencies as an essential part of its strategy. This is the case of the French Departmental Teachers of Agriculture of the beginning of the century and of the Spanish Agricultural Extension Service of the sixties.

When an extension system incorporates research agencies or seeks a close relationship with them, we will say that its articulation corresponds to the **"research/extension"** scheme. Normally, this increase in the degree of articulation of an extension system goes hand in hand

with the separation of education agencies from the system.

The third value detected for the articulation indicator emerges as a trend in some European systems and in the North American system. This is what we have called articulation **in the information system.** When we say that an extension system is characterised by this typical value for the articulation indicator we are referring to the fact that the channels of information of the extension agencies and its target clientele are left open to the widest possible information and knowledge system. This would be the case of an extension system, the strategy of which was based on allowing the extension agent to go and seek out the information wherever it may be found. Another example would be the case of the private agricultural information systems which began to develop in the United States amongst which the farmer could choose depending on the price quality ratio offered by them.

Specialisation

The specialisation indicator refers to training and the functions of the different persons who form part of the agencies that make up the extension system and it refers, above all, to the base agents. This indicator therefore refers to the functional aspects of the organisation of extension work.

We distinguish three typical values of the specialisation indicator: *generalist, generalist-specialised* and *specialised.*

The first organised extension systems in Europe and the United States based their work on the figure of the country agent or the itinerant instructor who possessed a general knowledge of agriculture and the socio-economic problems of rural society. Backing up these generalist agents, there are in some extension systems specialists in the different branches of agricultural activity (crops, cattle-raising, agricultural economics, etc.). We will say that a system of this type is characterised by **generalist** specialisation, or in other words, by a low specialisation level of its base personnel.

The evolution of European extension systems is accompanied by increasing specialisation of the country agent. A system based on generalist agents with a certain degree of specialisation in a field of agricultural or rural knowledge will be characterised as **generalist-specialised.**

Lastly, we encounter the case of systems in which there is no generalist in the positions of the organisation. We will say that this system is characterised by **specialised** extension. In these cases, the extension agencies may be organised into uni- or multi-disciplinary teams.

Centralisation

The centralisation indicator refers to both the target clientele and the special aspects of the organisation of the agencies which make up the extension system. The possibility of combining the two qualities lies in the close relationship existing between the possible values both have in reality.

We will distinguish as typical values of the centralisation indicator the following: *whole cover*, *farmers' associations* and *target market*.

We will say that an extension system is characterised by **whole cover** when it addresses itself to the entire agricultural or rural population in its area in terms of its objectives and area of competence (national, regional, provincial, or other). Normally, whole cover systems are characterised by a decentralised organisational structure and by their continuous presence, in space and time, in the rural environment.

An extension system centralised into **farmers' associations** fixes as its target clientele a series of associations (co-operatives, trade unions, women's associations, etc.), which usually contribute to the funding and/or management of the extension agencies. These systems tend to be national or regional, with a more centralised organisational structure than whole cover systems and with lesser spatial cover due to the fact that their clientele is grouped together.

Lastly, we come to a third typical value of the centralisation indicator regarded as a trend. We are referring to those systems which regard the agricultural or rural information and knowledge systems as markets and their target clientele as any individual or group of individuals who are willing to use to this market **(target market).** These systems employ indirect means of communication, such as the microcomputer for consulting expert agricultural systems through video text or correspondence, and therefore correspond to a centralised organisational structure.

With a view to providing an overall vision of the proposed qualitative characterisation of extension systems we can make use of simplified graphic representation procedure like the one which sets out the set of indicators and typical values defined for them (figure 2). These figures should only be taken as simplifications of the overall qualitative analysis which allow us to obtain a first impression of a characterisation and to make a quick direct comparison of different characterisations, but they should never be used to draw conclusions about an isolated case.

Figure 2 shows the typical values defined for each indicator. The indicators appear at the bottom of the table and above each one of them the possible typical values. The relative vertical position of the typical values for each indicator corresponds to a certain gradation taken from the definition of the indicators, although in reality it is a way of allowing the simplified representation of the ideal types to appear as horizontal lines which do not cross. And it is not, of course, any kind of numerical scale since we are dealing with qualitative macro-variables.

Ideal Types

As we have shown in figure 2, the extension system typology which we are proposing consists of three ideal types. The terms chosen to name each of the proposed types are: (i) Social Agronomy; (ii) Dutch Extension; and (iii) Information Market.

Consideration of the definitions of the different typical values in itself gives us an idea of the characteristics of each of the three ideal types that we are defining. Nevertheless, we will carry out a careful analysis of some aspects of the inter-relations between the partial characteristics of each type when considering the socio-historical contexts which correspond with them. Likewise, we will see how near the real systems of different countries and regions come to the ideal type and we will analyse the move from one model to another. All of this will be set out below for each ideal type.

Social Agronomy

What we have called "Social Agronomy" is the ideal type of extension system which corresponds with the inception of the global modernisation process of agriculture. The term "Social Agronomy" has been taken from Chayanov, since the model we are concerned with roughly corresponds with the idea of this author on what the extension system should have been to ensure the evolution of traditional agriculture towards a modern agriculture in Russia at the beginning of the century.

The majority of European extension systems and the North American system operating at the beginning of the century resemble, to a lesser or greater degree, Social Agronomy. The same is not true of the extension systems which were the forerunners of the above-mentioned systems, since they were characterised by an agricultural scope of objectives, semi-governmental participation and centralisation in associations, which resembles more closely Danish Extension than Social Agronomy.

Social Agronomy is based on the consideration of agriculture as a 'way of life' and of rural society as the bearer of values in danger of extinction. This model acknowledges the diversity of agriculture and, in general, holds a dual vision of agricultural economics -an economy of small farmers and big farmers-. As regards intellectual and political aspects, the socio-historical process which caused the move towards this type of extension system dates back to the turn of the century, to the thought of the social scientists in close proximity to the rural environment whose work depended on the State, such as Chayanov or the American rural sociologists of the first and second decade of the century.

Being a system with very broad objectives, of a social and economic nature, it is logical that Social Agronomy should be adopted by States and not by farmers' associations. However, together with its governmental nature, an ideal extension system of this kind is characterised by great autonomy with respect to other governmental institutions connected with agriculture whose tasks are of a more technical and specific nature than those of extension agencies included in a system corresponding to Social Agronomy. This autonomy places those in charge of agriculture in the State in an uneasy position with respect to an institution which while enjoying state funding is not connected with the other institutions of the corresponding Department of Agriculture.

Agricultural knowledge is only part of the knowledge necessary for an extension agent appointed to Social Agronomy. His or her training is therefore generalist and articulation with Agricultural Research is not essential to the organisation of this extension system. The extension agent is a person who is integrated in the rural environment in which they work, and enjoys great autonomy in the realisation of his or her activity: highly varied activity with a good measure of social commitment. These circumstances contribute to the separation of the extension agencies from the rest of the public agricultural institutions which consequently resent the former.

Cover of an extension system of the Social Agronomy type, as regards target clientele, is total -within its area of activity- because the State must look after all of its members.

To a certain extent, Social Agronomy is a "normative" kind of extension system, since the target clientele is not consulted on the development model in which it will be immersed although it does participate in detecting problems and co-operates in developing certain extension programmes.

The extension systems which most resemble Social Agronomy are: the Spanish Extension Service during the sixties and the French Departmental Teachers Corps- later on, the Corps of Agricultural Service Directors- from the beginning of the century until 1959. Both systems, however, have a clearly differentiated genesis. The French system emerged spontaneously at the end of the nineteenth century, in answer to the socio-historical context which we have identified with Social Agronomy, and took shape gradually step by step. The Spanish system, however, took shape in the sixties, having been created with advisory aid from North American extension technicians in 1955 in accordance with an agreement between the Spanish and the United States governments.

Danish Extension

Danish Extension has been given this name because Denmark is the country whose extension system now most resembles -and did in the past- this abstraction. In effect, from the twenties onwards extension ceased to be governmental in Denmark and came very close to what we call Danish Extension.

Danish Extension corresponds with a context in which: (a) agriculture has a certain measure of production specialisation, either because the region in which it is carried out allows little diversity, or because agriculture has evolved from diversity towards specialisation; (b) the agricultural population is sufficiently organised to constitute some kind of association (corporatization); and (c) the State permits or encourages the participation of organised farmers in agricultural development policy. In short, Danish Extension occurs in contexts in which agriculture is professionalized and agricultural society corporatized.

As we have already seen when discussing Social Agronomy, the first North American extension systems closely resembled Danish Extension. In effect, if we analyse the creation of the Cooperative Extension Service in the United States, we observe how the forerunner of this Service -the Farmers' Institutes-, set up as semi-governmental extension systems, called on the State to set up education agencies, which up until that time did not exist in the United States, in order to expand these systems. However, the State created the Land Grant Colleges as education agencies and also new extension agencies (state Extension Services) which were originally semi-governmental, then later governmental. Subsequently, the extension systems which resembled Danish Extension disappeared and there was a move towards a single system close to Social Agronomy.

In Europe, before the Second World War, we find cases similar to the American Farmers' Institutes, that is to say, close to Danish Extension. However, from the forties onwards and largely due to the influence of American Aid and of the Organisation for Economic Development and Cooperation, most European countries were moving towards extension systems with similarities to Social Agronomy which the American Extension System was close to. This process was possible for two reasons: (i) Because an extension system resembling Social Agronomy can be created, recommended or copied autonomously by government officials since it is based exclusively on State initiative; and (ii) because a system in tune with Social Agronomy does not, for its implementation, require certain specifics for the socio- economic context (corporatization and professionalization of the farmer) of the country which adopts it, which, as we have seen, are necessary for the setting up of a system in accordance with Danish Extension.

The evolution of agriculture in Europe caused some of its countries to gradually abandon extension systems of the Social Agronomy type and to adopt features of Danish Extension. For example, France changed its extension systems as a result of changes in its agricultural policy, from 1959 onwards, adopting a co-management strategy for agricultural modernisation. In Spain, this kind of evolution has not been possible, amongst other reasons, because of the lack of development of farmers' associations and the lack of initiative in this area shown by farmers and the Administration. However, Navarra, a Spanish region in which the national extension system was never established for reasons of administrative autonomy in this and other areas, progressed from a system of whole cover (theoretical) and generalist (with agricultural experts dependent on the Diputación Foral (Regional Council) to a system resembling Danish Extension with the creation of the first Instituto Tecnico y de Gestión (Technical and Management Institute) for cereal producers, based, initially, on compulsory association of the members of cereal co-operatives existing in the area to this system.

The inter-relation between the typical values of Danish Extension is the following: From the time when farmers' associations participate in the funding and management of extension activities, and in view of the fact that, in general, they base their existence on common interests with respect to agricultural economic activity, the objectives of an extension system of this kind will remain restricted to agricultural aspects. Normally, the farmers request information and advice of a technical nature, while the State requires the system to deal with socio-economic issues which allow it to implement its agricultural policy (farm management, farm viability, book- keeping, transfer of estate, settling of young people, etc.). In Danish Extension, the State finances information activities aimed at the entire population and the work of country agents who abide by their guidelines, while the farmer pays for advisory services which the system offers him or her on a private basis. The differentiated demand of farmers and State requires different types of agent, all of them with a certain measure of specialisation in specific areas. The State looks to the figure of the socio-economic advisor specialised in certain areas, while the farmer requires advice from a specialised agents who will need, in addition to their specialisation in a certain field of agricultural technology, a general knowledge of agriculture to carry out his or her work. Furthermore, the specialisation of country agents requires selective knowledge which can be found in research agencies with which the extension agencies should be well articulated.

Information Market

The information market emerges in contexts in which two facts which affect agricultural information coincide. Firstly, agriculture, as a result of economic development, becomes part of a tripartite structure comprising, together with agricultural production, agricultural input industries and food processing industries ("agribusiness"). Secondly, the development of the information sector determines that it has become a asset with an economic value and is therefore an input for agricultural production (information commoditization).

From the early eighties onwards agriculture in the United States was situated in a socio-economic context like the one described above. For this reason, the present North American extension system is moving towards what we call the Information Market. In fact, the United States Department of Agriculture (USDA) has already handed over to the private information sector part of the system which up until the early eighties had been run exclusively by the USDA. The difficulty for the United States or any other country involved in drawing near to the pure ideal type of extension system in question lies in the governmental character of production of information of agricultural interest. This is especially true as regards data collection (meteorological, market, etc.) for the drawing up of statistics and the obtaining of informative content through agricultural experimentation, although the latter is now highly privatised in many countries. This means that obtaining information is financed by taxes and consequently, access to this information should be subject to the same conditions for all taxpayers. However, a policy such as that of the Reagan Administration, aimed at making information obtained by governmental institutions such as the USDA cost effective, means that, alongside a governmental information gathering system, a private system coexists to propagate this information (extension system).

As we have seen in previous sections, the North American system has evolved from something close to Danish Extension to something with similarities to the Information Market passing through a configuration close to Social Agronomy. Most European countries, however, have moved from systems of the Social Agronomy type to Danish Extension -following this same trend at present- and it does not seem that they are moving towards the Information Market despite the efforts of the European Economic Community to this end. This could be explained by the participation of farmers' associations in extension management inherent in Danish Extension. We argued above the possibility of the adoption by a country of an extension system of the Social Agronomy type on the basis of the governmental character of this ideal type. The Administration of a country can, in addition to setting up an extension system of the Social Agronomy type autonomously, hand over part or all of the management of an extension system which it possesses in exclusivity. This has occurred -partially- in some European countries where management has been handed over to agricultural associations; and in the United States, to the private information sector. However, from the moment when the agricultural associations form part of the management of an extension system (as is the case in Danish Extension), the move towards a system of the Information Market type, with all that this entails with respect to the increased cost of the system for the farmer, becomes more difficult. We should bear in mind that the privatisation of extension, which the change to an Information Market entails, does not mean that only the services of private extension agencies must be paid for, but also information services (above all, publications) offered by the governmental agencies which remain within the system.

The inter-relationship between the features of an extension system in accordance with the Information Market is the following:

The development of the agribusiness sector determines that the objectives of the system in question correspond with the new structure in which agriculture is situated, that is to say, that they acquire greater scope and specificity, at the same time, in the areas of technology and economics. The development of informative hardware (microcomputer, video text, teletext, etc.) and of the information sector in general mean that, amongst the types of action determined in the work strategy of an extension system of the Information Market type, information and advisory actions are predominant, to the detriment of animation and educational actions (which tend to be carried out privately through new channels of communication). The ultimate objective of an extension system of this type is the development of artificial expert systems[14] for its operation.

The above means that the management of an extension system of the Information Market type acquires a high degree of complexity so that it becomes a question that it is very difficult for the governmental sector to tackle autonomously. Moreover, it is the private sector which possesses new technologies in the field of information. However, the fact that Extension in a country or region is moving towards an Information Market does not mean that the public sector is not going to continue its presence in extension activities, although, in the event that this should occur, governmental Extension will gradually give up the socio-economic tasks related to production (transfer of technology) and will devote its efforts to socio- economic tasks related to the implementation of measures which are complementary or alternative to production and part of its rural development policy (settling of young people in agriculture, development of marginal rural areas, conservation of the environment, etc.). Therefore, the training of the personnel of governmental agencies has to be reoriented towards socio-economic issues and the personnel must be organised into multi-disciplinary teams geared to working in such areas. This means that the extension agent in governmental agencies must work with the rest of the personnel employed in the governmental sector to secure the implementation of rural development policies thus becoming integrated in some kind of development agency.

---

[14] We are referring to compulter programmes that are sufficiently complex to solve questions related to technical and/or economic management of an agricultural enterprise.

The ideal type of extension system that we are concerned with here tends to be articulated with all the agencies belonging to an agricultural information and knowledge system from the moment when information is considered as an asset with an economic value from which profit may be made, since -in a capitalist economy- profit must be maximised.

Logically, an Information Market only includes the potential user of the services of the extension agency whom they will regard as the other party in an agricultural information market (meeting point for business). This feature of the Information Market can lead to situations such as the present North American extension system which experienced -in 1983a 10 to 15 per cent drop in the number of people receiving agricultural information publications from the USDA: some publications that the USDA supplied free of charge before the appearance of the Food and Agriculture Act in 1981 (GOE and KENNEY, 1988:91).

The present trend of European extension systems involves the partial privatisation of their activities. This trend, in general, is not due so much to the information commoditization process and the other processes that would ideally lead to the Information Market, but rather to the fall in budgets experienced by these systems. Some authors have established that the drop in resources for official extension from the State is due to the decline of the active agricultural population (LE GOUIS, 1988; RÖLING, 1988). This drop in resources should, according to some authors, lead to a reorientation of the objectives of the governmental extension systems such as the one described in the previous paragraph and to payment by the farmer for part of the services that they offer.

Leaving the ideal level to one side, we could say that, as regards organisation, the current shortage of resources in official extension and a tendency towards administrative decentralisation have meant that some extension systems tend to become integrated in "pluri-function agencies" of the corresponding agricultural departments, that is to say, they are decentralised with the agricultural administration -something totally different from the process of creation of development agencies described in the analysis of the Information Market-. In reality, what we have called pluri-function agencies are normally made up of the technical personnel that the department of agriculture in question possesses, that is to say, the extension agent now works with veterinarian, forestry engineers, chemists, etc. In this way, the extension personnel of the governmental systems -selected initially with a "technical-communicative" profile- finds itself in a situation in which it is assigned functions related to socio-economic matters, but is, at the same time, isolated from the personnel with which it could collaborate to resolve such problems (economists, lawyers, sociologists, etc.) and placed alongside people with training and functions of a technical nature. Consequently, the extension agent tends to be unwilling to accept being reconverted into a social worker or a socio-economic advisor and normally interprets his or her new duties as red-tape (the filling out of all kinds of forms). Thus, the base extension agent usually loses direct contact with the farmer outside the agency -a contact which, up until then and although it was not recognised as part of his or her functions, was a mixture of technical and social work.

Weber considered that the trend of reality moving towards an ideal type occurred in terms of a global characteristic process of the historical process. For instance, for Weber, the <<rationalisation>> process brought certain organisations towards the ideal type <<bureaucracy>> defined for them. In our case, the trend towards an ideal type of extension system cannot be explained by a simple process, since the definition of an ideal type includes different parameters depending on different processes and not only on organisational aspects as is the case with Weberian <<bureaucracy>>. Therefore, if we consider the participation of an extension system -one of the parameters (indicators) which we are using-, we have seen how the trend towards "semi-governmental participation", that is to say, participation of associated farmers in the management and financing of an extension system, requires the development of agricultural associations (the process of "corporatization" of agriculture), which is closely linked to the appearance of a common economic interest, the fruit of the emergence of new technologies (fertilisers, book-keeping, etc.) which improve the efficiency -in the Liberal economical sense- of the productive process); while the trend towards "private participation", that is to say, privatisation of a previously governmental extension system, requires an information commoditization process to occur (an economic process related to the development of information technology by the private sector and to a change in information policy).

From this we can conclude that the trend towards one or another ideal type of extension system -as they have been defined- must be explained bearing in mind the different factors of the socio-economic-political context which leads to that ideal type.

In summary, we may say that the three ideal types defined, that is Social Agronomy, Danish Extension and the Information Market, correspond respectively and schematically with the following general historical contexts: that in which the social aspects of rural development, such as agricultural *associativismo*, are emphasised; that in which agricultural development is sought through technical training and the transfer of technology; and a context in which the commoditization of information of agricultural and/or rural interest occurs and extension plays an important intermediary role in a market of this new product.

We believe that it is not necessary to justify the fact that we have not considered here all the factors necessary for a comprehensive analysis of the context in which an extension system is situated. Instead, we have undertaken deeper consideration of the more outstanding factors in each case.

In the table which appears below we have brought together the processes (social, economic, political and intellectual) of the historical context which leads towards each of the ideal types defined.

CASE ANALYSIS

The Case of France

The origin of extension in France should be sought, according to Jones (1981), in the seventies of the last century. At that time, the Third French Republic tried to enforce its ideas on the rural environment secularising and reforming the educational system which operated in the countryside. The spirit of the Third Republic included the "maintien" of the rural environment[15] and one of the key figures in securing this was the corps of "Professeurs departemental d'agriculture". This corps of teachers of agriculture originally constituted an extension system which we could call "enlightened", a type which prevailed in most European systems at the end of the 19th Century. For Jones, the type of system that we are going to call "enlightened" -due to the fact that it was promoted, in its creation, by the European Agricultural Enlightenment (politicians, aristocrats, feudal lords, etc.), and that it was basically made up of teachers of agriculture- coincides with the origin of the scientific consciousness of Agriculture. Although it is true that the systems we are referring to here emerged due to the diffusion of new techniques, the fruits of the Agricultural Revolution at the end of the 18th century, it should be remembered that the genesis of the **enlightened extension systems** can be explained, in several cases, by the problems caused by the process of the spreading of crops from one country to another and/or from one continent to another[16]. In the case of France, it was the phylloxera imported from North America together with new vine varieties which dictated the work of the first professeurs departementals d'agriculture who had to teach the French farmers how to graft the vine onto American stocks which were resistant to the aphid which had been ravaging the countryside since 1863.

---

[15] <<Up until 1949 a policy of maintien is carried out, in keeping with the spirit of the Third Republic...it was necessary to maintain the loyalty of the peasantry to the republican regim...this was the function of the Head of the Agricultural Services (previously Professeur Departemental D'agriculture)>> (MULLER, 1984).

[16] In addition to other considerations of the causes of the origin of Extension, such as the considerations of Gomez Ornafel (1978) on the close link between the development of education and the process of formation of nations and States which the different peoples of Europe experienced throughout the 19th century, in particular; or the considerations of Jones (1984), who signals as requirements of this origin aconditions necessary for the emergence of extension organizations in the 19th century>>, which would be, according to this author: (i) the awakening of scientific, agricultural awareness, (ii) the recognition of a need or problem that could be solved through this awareness which the farmer lacked and (iii) the conscious concern of politicians and agricultural leaders for the well- being of the peasants with regard to the economic conditions of the change; we should consider a third factor and that is agricultural catastrophes ind the problems of an economic nature caused by the uncontrolled diffusion of new crops between America and Europe or within each of these continents. As regards agricultural catastrophes, we can cite the problem caused by the potato blight in Ireland and phylloxera of the vine in France and Portugal. On the case of Ireland, Jones himself has pointed out that <<Possibly the first of the modern Training and Advisory Agricultural Services was set up in Ireland during the great potato famine in the mid nineteenth century. The service operated from 1847 to 1851. It was set up in 1847, initially as i framework for temporary and small scale work as a result of the proposals detailed in the letter from the Earl of Clarendon, Lord Lieutenant of Ireland to the President of the Royal Society of Agricultural Improvement of Ireland. This led to the institution of the itinerant practical instructors to work with the small peasant farmers in the areas worse affected by the famine in the south and west of Ireland...In the mid-forbes of the nineteenth century, a disease produced by fungus, the pohto blight (phytophthora infestants) appeared for the frst time in the north west of Europe. This seems to have been brought across the Atlantic from North America.>> JONES, Gwyn E. (1982): "The Clarendon Letter" in JONES, G.E. and ROLLS, M. (eds): *Progress in Rural Extension and Community Development*. Vol. 1. London. John Wiley & Sons. pp:II. On the case of France, Jones has likewise established that <<Work regarding the instruction of farmers in vine grafting was of particular significance; from 1863 onwards, the phylloxera aphid had been ravaging the French vines and the only effective solution was to graft healthy varieties onto phylloxera resistant American stocks.>> JONES, Gwyn E. (1981) "The Origins of Agricultural Advisory Services...", op. cit., pp: 96. As for Portugal, we can say that the first model-farm created in this country in Oporto originated from the problems caused by phylloxera in the regions

In reality the first departmental agricultural teacher appeared in France in 1836 when the professorship of agriculture of the department of la Gironde was established, but it was not until June 16th, 1878 that a law on departmental and municipal agricultural education formally acknowledged the corps of Professeurs Departementals d'Agriculture. In this way, by the late eighties of the last century, every French department had a teacher of this kind.

Jones had pointed out that: <<these teachers do not form part of an organised national or regional extension system>>. However, it is a well-known fact that the Professeurs Departementals d'Agriculture were controlled by the Government in Paris and by the Prefectures in their Departments, which normally required them to obtain information on the conditions of agriculture in their areas (MULLER, 1984). The corps of professeurs depended, in fact, on the Ministry of Public Education, as regards the education given to rural teachers; and on the Ministry of Agriculture with respect to the rest of its work. When he signals the absence of a global organisation of the Professeurs, Jones is probably referring indirectly to the great measure of autonomy that each Professeur enjoyed in his Department.

For Muller, the Professeurs Departemental d'Agriculture - who in 1912 took the title Directors of Agricultural Services (DASs) and in 1964 became Ingenieurs des Services Agricoles - <<lie at the heart of the system of State intervention in agriculture long before the creation of the Ministry of Agriculture in 1881>>. According to this author, the Professeurs were one of the main mediators between the peasantry and society and it was this mediating role which explains, still according to Muller, the extraordinary prestige that they enjoyed amongst the farmers[17].

---

watered by the Ducro. On this last point, see: MONTANER and SIMON (eds) (1887): Diccionario Enciclopédico Hispano-Americano de Literatura, Ciencias y Artes. Montaner y Simon, Editores. Voz: "Agricultura".

[17] As regards the fundamental characteristics of the action of agricultural instructors or directors of the agricultural services (DASs), we can say that, originally, s their name implies, their role was basically pedagogic. Above all, the DAS taught in the "écoles d'agriculture d'hiver" (which arnounted to 140 in 1939 wilh 30,000 young students following school-leavers' courses). The second task of the DAS was extension, which progressively became his main function, gradually overshadowing all his other duties. For Muller, the DASs have played a fundamenlal role in stimulating Ihe rural world in general, originating numerous agricultural organizations...the amazing variety of their duties becomes apparent it their annual reports are consulled...direct and personal contact is fundamental for the DAS...and il is undoubtedly this contact which contibuted to making the DAS a << polibcal>> civil servant as compared to the Rural Engineer, for example. This aspect was reinforced by the wide autonomy he enjoyed. The ,<<working pins>> of the department on agricultural matters, as Muller called them, the DASs were paradoxically very short of means. It should be pointed out that the work of the DASs at thal time was not il all routine. Cepede and Weill write: <the number of instructions sent each year to these avil servants by the central administration was limiled lo several units; they were also of a very general nature which meant that those receiving the orders were left great freedom of adaptation>>. The pre-war DAS spent more time int he country than in his office which allowed him to become deeply integrated in agricultural society. This was whal was expected of him, since, in 1919, the Minister of Agricullure requested his DASs not to wisre time in their offices or in meetings, but to use il in contact Wirh the peasants. <<Collaborarors have been given to the DASs in order to free them as far as possible from office work. These

The governmental extension system which we have been referring to clearly corresponds with **Social Agronomy.** This system, in spite of the fact that it had been operating for over one hundred years, disappeared by decree[18] in 1959. This change of extension in France is due to the decision by the State that the farmers should be the protagonists of the policy of modernisation of agriculture which would affect them from the sixties onwards. The role of the Directors of Agricultural Services is assumed by the Rural, Water and Forestry Engineers and by the Agricultural Engineers, but above all, by the <<third service>> of the Departmental Directors of Agriculture. The place of the "ecoles d'agriculture d'hiver" is taken by the CETAs[19] (Centres for Technical Agricultural Studies; of which 500 existed in 1957 and 1000 in 1962). On October 4th, 1966, the National Association for Agricultural Development (ANDA) is created and on December 22nd of the same year, the National Centre for the Improvement of Agricultural Farm Structures[20] (CNMEEA).

As we can see, French governmental extension moved in 1959 from social agronomy towards **Danish Extension.** As regards the driving force behind this change, there are differing opinions. For Le Gouis, the present situation of French extension is the result of a process which emerged in the sixties within the professional agricultural organisations, mainly those of young farmers, which tended to play the leading role in its development>> (LE GOUIS, 1988)[21]. For Muller, however, the change is brought about by the State, whose

---

civil servants, even today, have a loose rein to carry out their essential role, which is that of maintaining permanent contact with farmers in their area and of increasing the number of conferences and visits>>. His role, then, went far beyond that of the traditional civil servant: <<They had almost a kind of moral presence, they were listened to as advisors and some even arranged weddings when the bonds of friendship had become strong between them and the rural community..., they were extremely strange times>> (former-DAS)>> (MULLER, 1984).

[18] In effect, extension. traditionally carried out in France by the Ministry of Agriculture, is entrusted to farmers' organizations by decree on August 11th, 1959, and later, by decree October 4th, 1966, it is given the name <<Développement Agricole>> (OECD. 1981: 196).

[19] <<P. Houée defines the C.E.T.A.s (Centre for Technical Agricultural Studies) in the following way: <<around fifteen farmers from the same region, aware of their isolation as regards information on technical developments, join together in an independent association (1901 law), they decide to exchange experiences, achievements and failures, they share financial means, they shue the work of study and information, oft he search for competent techniques, with a view to improving their enterprises technically, economically and socially>>, (MULLER, 1984:40).

[20] In 1966, the Asociation Nacional para el Desarrollo Agrario (ANDA) (National Association for Agncultural Development) was created. It was an association of private right which adminstrated the funds fort his chapter (discussing amongst its members whether the origin of its funds is public or private). The Board of Directors of the ANDA is made up of 22 people, 11 representatives from the Administration (Ministry of Agriculture, Finance and the Treasury) and 11 representatives from agricultural organizations (Chambers, Trade Union Federation, Mutual Benefit Group: agricultural credit, cooperatives and mutual insurance agencies). The Chairman of the Board is an agricultural professional. The ANDA has no authority in agricultural policy, which falls to the higher board, but it can inform the State about the needs of the sector. On a national scale, the ANDA has the task of distributing credit for different activities: agricultural development, marketing, research, training, diffusion, etc...The ANDA has 15 applied technical research institutes for the different agricultural sectors. Basic research depends ont he State.

[21] To back up this statement see also: ROLLAND, L. (1984): L'histoire de la vulgarisation agricole avant 1966" in Economic Rural, No 159, January-February. pp: 11 16.

policy -during the sixties and seventies- consists in <<transforming the peasants, or at least those who remained, into individual, competitive, exporting entrepreneurs of enterprises...by means of...a system of co-management which some would consider corporatist>>, just as, warns Muller, <<other sectors such as the trading or manufacturing sectors have been modernised, but in a totally different way because they themselves have taken charge of the process...>> (MULLER, 1984).

We may deduce, from what Muller says, that the processes of the historical context of corporatization of agriculture and the professionalization of the farmer that would lead an extension system towards Danish extension did not take place in France in the sixties. This would be the reason why Danish extension was not consolidated in France, as is in fact the case.

In effect, the decision of the French government that the farmers should play the leading role in their development backfired during the seventies. For Muller, the painstaking setting in motion of the development plans in France -compared with other European countries- can be explained both by the curbing of the policy of modernisation by the agricultural profession in the seventies and the professional reticence of former extension personnel. For this author, what happened in French agriculture during the seventies is the <<posthumous revenge of the Directors of the Agricultural Services against the CNMEEA and the Structures Service>>.

At present, the French government wishes to encourage the diversity of the systems of agricultural production. The socialist government is aiming at stabilising the rural population[22]. This decision should imply, according to Muller, a return to the former extension system -that of the Directors of Agricultural Services-, that is to say, a move towards Social Agronomy. However, the Government is seeking to carry out the change with existing personnel. For Muller, this is not possible since the diffusion functions of the Departmental Directors of Agriculture (<<the third service of the DDAs>>), in spite of being the modern version of the work of the DASs, are not going to be decentralised and the Rural Engineers and Agricultural Engineers, in spite of the fact that they have been in contact with local collectives, are not qualified for extension work related to agricultural economics and the management of farming enterprises, respectively.

---

[22] The objective of present-day French agricultural extension has been defined by Le Gouis as <<that of combining the maintenance of competitivity and economic expansion with the development model based on family farms>> (LE GOUIS, 1988). The State has reduced its role conserving the functions of financing, management, credit control and appraisal. Extension duties fall to professional organizations, the State being the financer of such work. On a national level, management is shared jointly by the State and the professional organizations. On a departmental level, management is carried out exclusively by the professional organizations. The financing of extension is distributed in such a way that the total amount of funds for this purpose is shared equally by the following institutions: the National Agricultural Development Fund (FNDA); the Agricultural Chambers; public credit from the State and the Regions; and the farmers contribute directly for the services received (managment, book-keeping, etc.).

The Case of The United Kingdom

The U.K. has a long extension tradition both in Europe and in its colonies. As early as the fifties of the last century we can find in Great Britain a series of local Agricultural Societies which carried out extension activities (examples of these institutions are the Bath and West of England Society, the Highland and Agricultural Society of Scotland or the Royal Agricultural Society of England). These first organisations of enlightened extension only reached the agricultural elite, and it was not until the nineties of the last century that we can say that extension reached the farming masses of Britain[23].

Initially, British governmental extension was based on a reorientation of the work of the "itinerant teachers-cum- advisors", a group of itinerant teachers of agriculture created by the Agricultural Societies operating throughout the country[24].

From 1945 onwards, advisory work and educational work are separated in the U.K., the former becoming a service of the Ministry of Agriculture and the latter of the Ministry of Education. In 1946, and in answer to the requirements of the Miscellaneous Provisions Act of Parliament, the Ministry of Agriculture created the National Agricultural Advisory Service (NAAS) with a structure and objectives similar to those of the official extension services created in Europe after the Second World War in the image of the **USA extension model**[25] (the Cooperative Extension Service), that is to say a service resembling Social Agronomy.

The NAAS operated for twenty-seven years until it was replaced in 1972 by the Agricultural Development and Advisory Service (ADAS) which had a structure and objectives very different from those of the previous extension service.

The creation of ADAS was promoted by the OECD, which has, logically, backed its consolidation in the U.K. as can be deducted from the conclusions of the subsequent Conferences on the Work of the Directors of Extension Services of its member countries[26].

---

[23] This widening of extension clientele is favoured by the creation of a structure of local governments based on administrative counties in 1880 and by the publication of the Technical Eduction Act in 1885.

[24] In 1890, the British Government managed to allocate the money collected as taxes on alcoholic beverages (whisky money) to agricultural education. This public funding of the "itinerant teachers-cum-advisors" allows the majority of the rural counties to possess on of them and, in some cases, with these extension agents <<farm institutes>> are established where agricultural education and advisory activities are carried oul jointly. This extension system operated in England and Wales until 1939 (JONES, 1981).

[25] I am referring to the exportation of North American extension experience to other countries (1945-1960). This corresponds with the recognition by the United States of the efficiency of "their" extension as an instrument to modernize agriculture. In thist exportation of American extension the international organizations for cooperation and development (OECD, FAO, USAID, etc.) play a very important role.

[26] Although the British Ministry of Agricullure, through its top official -W.H. Helme- has considered that the creeation of ADAS was, in accordance with a unilateral decision of the State, based on the change experienced by British agricultural structure during the sixties, other people find it difficult to dissociate the decision to reorganize the advisory services of the State in 1971 from the polital changes which were taking place at this time. We maintain thatil was the Organization for Economic Cooperation and Development which was

The essence of ADAS may be defined, in the words of Helme, in the following way: <<ADAS is an organisation provided by the State to meet the requirements of the Miscellaneous Provisions Act of Parliament of 1944...in answer to fundamental changes in the economy and the structure of the agricultural industry, associated with changes in the objectives and methods of farmers, which indicated the need to change the way in which the Ministry was carrying out its duty, since the quickening pace of change in the sixties was placing more and more restrictions on the process of adaptation>> (HELME, 1975:53).

As can be appreciated, ADAS is an organisation which, as regards extension, closely resembles an **Information Market.**

From 1972 onwards, ADAS is the organism which undertakes Governmental extension in England and Wales.

ADAS regroups most of the technical services of the Ministry of Agriculture within an organisation on three geographical levels from lesser to greater specialisation. More specifically, ADAS has come about as a result of the union of the former National Agricultural Advisory Service with the State Veterinary Service and the Vegetable Protection and Seed Inspection Service. As regards the organisational structure of ADAS, the following levels exist: firstly, a peripheral level with Local Advisors who work in district offices situated several miles from the farmers who depend on them (the Local Advisors are normally specialised to some degree in knowledge which affects farmers in their area); secondly, we have an intermediate level made up of specialists with a regional area of activity, installed around 70 miles from the areas whose farms they tend to; lastly, we have the Experimental Centres and Laboratories on a local or national level depending on their work (BELL, 1988).

ADAS off AS is its real co-ordination with the Offices for the Marketing of Agricultural Products (for example the Milk Marketing Board with which it maintains a close relationship).

---

responsible for the creation of ADAS. In this respect, we should bear in mind that in 1971 the OECD held a Conference on the Work of Directors of the Extension Services with the general title: "Agricullural Extension in commercial agricultural enterprises and in advanced agricullural regions". Al this conference, the OECD put to its members that, in some regions, where agricullure had already reached a creation level of development -in terms of modernization- which was acceptable to its administrators, then questions of education and tha adoption of technology should gradually decrease in importance. What should concern us in these areas, according to tha OECD, was the maintenance of agricultural production that had already acquired its own dynamics and was integrated in a complex agribusiness system. The objective of extension should therefore be considered to be that of advising large farming enterprises and agricultural industries (OECD, 1971). The United Kingdom, which attended the conference as a member country of the OECD was the only country to accept the recommendations of the Organization for Economic Cooperation and Development. Thus, in 1972, il created ADAS as an organization to servet the needs of the large farming enterprises and agribusiness industries. .<<If ADAS accords great importance to the technical aspects of production it is, above all, because the farmers in these regions (England and Wales) possess a sufficiently high level of education and a sufficiently favourable fuming structure to adopt for themselves, choosing amongst those which are proposed to them, the innovations most concordant wilh their interests>> (OECD, 1981:7). The managing director of ADAS, summarizes, in 1984, the philosophy of the service in these words:a Since its creation in 1972, ADAS has deliberately cooperated wilh agribusiness firms, which, like the farmers or even some other people or governmental or private bodies, can benefit from the free advisory services. This emphasis on cooperation with industry, and the cleir distinction between the work of ADAS and the Office for the Marketing of Agricultural Products are considered by this organism to be the fundamental conditions for its efficiency>>. (DEXTER, 1984:67).

Apart from this, ADAS also seeks to establish co-ordination with private extension agencies (above all with sales technicians of agricultural input firms) with which its relationship is more strained due to differing objectives and to the reluctance shown by the personnel of both types of extension agency with respect to joint actions. In this respect, one of the greatest difficulties lies in the difference in the private sector's and the public sector's points of view on experimenting[27].

One of the issues which has most concerned ADAS from the time of its creation is the fixing of agricultural research priorities, since the State finances part of the research undertaken by the private sector. After trying out several systems without achieving satisfactory results, in 1984, the British government established a Priorities Board (for the distribution of funding from the public sector). This Priorities Board is made up of five independent members who represent agriculture, the food industry and the scientific community and three ADAS officials. According to the current director general of ADAS, this system works well and has managed to overcome the shortcomings of previous boards in which the farmers had greater participation[28].

The Case of Italy

In Italy, the first agricultural extension and diffusion services were created in 1928, the year in which law No. 2885 formalised the "Cattedre ambulanti di agricoltura" in order to organise professional training courses for young farmers. A year later, the Royal Decree No. 329 created the Extension Commission which operated until 1941, the year in which Royal Decree No. 489 transferred to the "Concilio Superiore dell'Agricoltura" the duties of the Extension Commission which was abolished.

The Italian Cattedre Ambulanti, close to **Social Agronomy**[29], were not consolidated as an extension organisation, as they were restructured in 1935 -when their duties were given over to the Ministry of Education- and in 1939, the corps of "Inspecttorati Compartimentali dell'Agricoltura" (ICAs) and the "Inspettorati Provinciali de dell'Agricoltura" (IPAs) were created replacing the "animators" of the cattedre[30]. They finally disappeared with the arrival of Mussolini's regime[31].

---

[27] According to Bell: <<In public research the motivation of the personnel is often directed towards improvement of general scientific knowledge, and there is frequently a feeling of apprehension if a business firm commercializes a new product before its effectiveness and performance have been established beyond reasonable doubt. In contrast, the commercial supplier is mainty concerned with the development of new products which will perform well on the market. Scientific knowledge is only considered important if it contributes in essence to this end>> (BELL 1988:9).

[28] <<Advisory organizations, in which the producers are well represented, pay little attention to the difficult question of determining priorities>> (BELL, 1988:8).

[29] <<At the beginning of the century, after the great crisis, the first advisors had taken up positions. The name under which they had been designated: "itinerant teachers" (cattedre ambulanti) is a good indication of the philosophy that guided their actions. They were avaiable to meet the variety of needs that were connected with agriculture; there was a minimum amount of bureeaucracy und milximum flexibility in action und orgunization>> (DE BENEDICTIS), 1984).

In 1946, under the auspices of the Marshall Plan, extension is once again reformed in Italy, with an attempt at adopting the US model[32]. However, the restructuring was not successful due to organisational problems[33].

---

[30] In 1935 the Cattedre ambulanti disappeared by virtue of law No. 122O which entrusted the Ministry of National Education with the task of defining the orientation of agricultural education and of coordinating the training courses given to farmers und stock breeders. In 1939 the Ministry of Agriculture and Sylviculture created the "Inspecttorati Compartimentali dell'Agricoltura" (ICAs) at the head of which a certain number of former "animators" of the Cattedre ambulanti were placed. This, together with the creation of the "Inspetctorati Provinciali dell'Agricoltura" (IPAs), meant that extension personnel from the now extinct Cattedre could be employed und their duties definitively established. After this reform had been carried out, extension became a State monopoly and ceased to be limited to professional training, engaging also in information activities.

[31] According to De Benedicts, <<this positive experience (that of the cattedre ambulanti), which tends to be considered now as the golden age of extension services, was interrupted in the fascist period during which governmental action in agriculture was inspired by ideas of strict centralization and the eradication of any local initiative" (DE BENEDICTIS, 1984).

[32] From this time on, the governmental services devoted their efforts more to the technical than social or economic progress of the rural population. They arranged specific training programmes aimed at farm management and young people in rural areas (creation of the 3P Clubs, the Italian version of the 4H Clubs of the United States). The first stage involved the training of technical advisors and local "animators". In the second phase, governmant extension services perfected the use of modern information methods aimed at the individual or groups. Lastly, Centres for Technical Aid for Agriculture (CATAs) were set up in the more developed agricultural regions which could be improved. In addition, an experiment was caried out involving a local form of permunent extension, realized by un expert and un assistant specialized in household economics.

[33] De Benedictis summarizes the problems of Italian extension between 1945 and 1972 in this way: <<Italy, after the last war, therefore inherited from fascism un administration that was more willing to receive and set into motion orders from above thun to react to the requests that were coming from below. Just after the war, these requests were numerous and diverse. They reflected fully the heterogeneity of Italiun agriculture and in cartain cases, expressed the economic and social conflicts that the sector was experiencing...The veredict on the characteristics and activibties of the extension services during the period from the end of the Second World War up until decentralization in 1972 is categorically negative. Simplifying a complex set of elements, eliminating all but the most essential, the following points should be highlighted: (a) Governmental intervention in agriculture continues to be characterized by cumbersome bureaucracy and centralization. The extension services are no exception. Even when their operation is based on provincial bureaus, their structure and performance are uniform throughout the peninsula providing homogeneous answers to heterogeneous requests; (b) The technical personnal is imbued with administrative formalities and has no time -nor eventually interest- for the more demanding duties linked to the running of extension services. This finally led to a notable lack of commitment on the put of governmental action related to the transmission of new technical know-how. The field was then left open to firms producing technical input whose action entailed notable discrimination amongst the different homogeneous groups making up the sector. These two features had led to a situation in which the links between extension und research were very weak; extension was totally incapable of guiding existing orientation of new techniques. In addition to this, the author pinpoints territorial organization for the planning of the work of the system as the cause of the failure to organize un efficient extension system. De Benedictis thus establishes that <<during the sixties, a situation arose which, had it been handled properly, could have permitted a radical modification of the philosophy and actions of the extension services: an agricultural policy decision, which showed its awareness of the need to coordinate private and governmental actions on a local level, took the small agricultural region formally as un elemental unit of agricultural planning. Unfortunately, this statement of intentions was not followed up with tangibles actions. The passive attitude of sluggish administration and the political conflicts at different levels were sufficient to sterelize this option" (DE BENEDICTIS, 1984).

Between **1945 and 1972** an attempt was made at moving towards **Danish Extension** which was equally unsuccessful since the corporatization of Italian agriculture had not been completed. Professional training which constitutes one of the essential tasks of the extension services was, during the above-mentioned period, entrusted entirely to a large number of agricultural organisations which, in some way, operated with governmental funds but with a great measure of autonomy. According to De Benedictis, control over the public funding of extension administrated by farmers' associations -always ex post facto evaluations- was lacking and based on certain formal aspects determined by each of them. It is generally agreed that the funds used in this way served to provide the organisations themselves with financial means.

Nevertheless, it should be pointed out that there are several significant exceptions to the picture painted so far. In particular, the case in which farmers have become directly involved in the management of extension services. An example of this is the service set up by the co-operative movement of the region of Emilia-Romana (DE BENEDICI IS, 1984:55).

This situation continued until in April of 1972 extension activities are commissioned to the Regions by virtue of Decree No. II of the Presidency of the Republic.

The organisation of the extension services on a national, regional and local level is currently undergoing extensive evolution in Italy. On a regional and local level, each Region applies its own legislation regulating the extension services for which different solutions are adopted depending on the political structures, real local needs and the human and financial resources they have available.

A certain number of Regions (the autonomous provinces of Trente and Bolzano, Liguria, Toscana, Marches, Abruzzes, Molise, Campana and Calabria) continue to use the pre-existing governmental or private structures, and carry out the same tasks as before they were entrusted to the Ministry of Agriculture: provincial inspections for agricultural questions, local agricultural offices, development agencies, professional associations (Cultivators, 3P clubs, agricultural confederations, ANGA, ACLI, Union of farming enterprises, etc.) co-operatives, etc.

The remaining Regions have totally modified their structure. For example, Piamonte bases its extension work on the CATAs of which there exist 150 at present (MANTOVANI and BELLANDI, 1986).

We know that an Italian region has recently organised visits to Spain with a view to becoming familiar with the extension system that was in operation in this country between 1962 and 1971, an extension system closely resembling social agronomy.

Regionalization may have brought about, according to De Benedictis, amongst other changes, a complete reorientation of extension services. There is no recent evaluation of the real situation in the different regions. However, a recent survey on expenditure in this area (INEA, 1982) leads us to think that great variation exists between the different situations with the presence of several common threads. In several regions, in particular in the North, extension services were increasingly organised around "groupes de vulgarisation" bringing together a certain number of family farms (around 80) with the assistance of an advisor. The expenses of these groups are covered up to a maximum of 80% of the total by financial contributions from the regions. It seems that, in comparison with the situation in the past, more attention is paid to questions of book-keeping and economic analysis. Even in the regions that have progressed further in this direction, the number of these groups is totally restricted and it is not known which services are offered to the farms not included in these groups -or even whether they are offered to them at all-. A certain number of regions -although not all- are increasingly concerned with the training of extension personnel and are progressively introducing a distinction between specialists and generalists. The problem of the qualification of extension services has always been crucial - but never resolved- in Italy.

The Case of Extension Policy in the E.E.C.

As we know, the Community bases its Agricultural Policy as regards structures on the idea of <<modernisation>>[34]. This idea in terms of rural development consists essentially in the increase of productive efficiency and this is carried out - together with other Structure Policy measures- through the improvement of what has been called the <<residual factor>> quoting the <<FOESSA Report>>, through the improvement of <<the degree of efficiency and qualification of the work factor, of the inventive capacity that is necessary to augment the technical improvements required by the capital factor (physical), of the degree of instruction that is needed to secure a competent group of entrepreneurs...>> (F.O.E.S.S.A., 1970).

We are not sustaining here that the E.E.C. is only concerned with increasing the productive efficiency of agriculture, without consideration for the social aspects of development and, therefore, that it only seeks to promote <<agricultural extension>> activities as they have been defined. It is in fact <<rural extension>>, as a tool of overall development, being penetrated by policies of a diverse nature (agricultural, educational, environmental, tourism, etc.). Governmental extension may only be managed autonomously by each EEC member country and it is for this reason that the EEC has limited its intervention in governmental extension in its member countries to legislation in the area of the Common Agricultural Policy. This remains so in spite of the fact that some efforts have been made aimed at designing a <<European extension model>> and at present, a pilot scheme is being carried out in some countries with a type of private extension agency called "carrefours" which we will discuss below.

The Directives of April 17th, 1972 on Agricultural Reform contain the so-called <<information directive>>, the directive concerning <<socio-economic information and the professional qualification of persons working in agriculture>> (Directive No.72/161/C.E.E. of the Council). This regulation is complemented by the <<modernisation directive>> (72/159/C.E.E.) and the <<abandonment/affection directive>> (72/160/C.E.E.).

---

[34] <<...the modernization of agriculture requires a considerable increase in general. technical and economic training levels. especially on farms where management, production and marketing are affected by the new orientations that technical progress and market demands have made indispensable>>. Taken from: *Dictionnaire du Marché Commun*, Vol. 1, Structure Policy, Section III, pp. 34-35.

The <<information directive>> -modified on some points by subsequent regulations of the same ranking[35]- was the legislative basis used by the Community to undertake agricultural extension activities in its member states up until 1985. This law did not impose any plan of action but was limited to providing recommendations of a general nature on how to act, providing for considerable funding in the cases in which extension adhered to these recommendations which included the following:

A. Concerning socio-economic information of the agricultural population:

- The creation and development of socio-economic information services.
- The training and up-grading of socio-economic advisors.

B. Concerning the professional qualifications of persons working in agriculture and the training of the directors and managers of co-operatives:

- The creation of both governmental and private general, technical and economic training centres (detailing the minimum conditions that such centres should comply with).
- The establishment of special training programmes for directors and managers of co-operatives.

The directive 72/161/C.E.E. has achieved varied results in the different member countries in the period nearing the end of its validity (1983-1985). Data on this period are included in the "Report on the situation of agriculture in the E.E.C." published in 1988. With respect to the training and up-grading of socio- economic advisors, West Germany is the state that has trained more specialists of this kind (1,121 advisors) and the only country that has run up-grading courses. Along with West Germany, only Belgium, Denmark, Ireland and the United Kingdom have made some effort to follow these guidelines (from 140 advisors in Belgium to 30 in the United Kingdom). As far as agricultural training is concerned, the results are similar, although here France should be added to the list of countries which have complied some way, as it has run basic training courses for 167,806 young people over the period 1983-85.

From 1985 onwards, the (E.E.C.) Regulation No.797/85 of the Council of March 12th, 1985 <<on the improvement of the efficiency of agricultural structures>> -modified on several points by subsequent regulations of the same ranking[36]- forms the common legal framework upon which extension is based, in more specific terms, upon sections II and VII of this regulation. In the first of these sections, member states are urged to establish a system to stimulate the introduction of book-keeping in farming enterprises (article 9). Although the objective of this measure is to obtain accounting data for informative purposes and to carry out scientific studies, we believe that, at the same time, it is also a step forward for the farmer in the management of his or her farm. With respect to section VII, <<Adaptation of professional training to the requirements of modern agriculture>>, it envisages, independently of actions that the Social Fund may put forward, a scheme providing aid for the improvement of professional agricultural qualification which includes:

---

[35] We are referring here to the directives 81/259 (J.O.C.E. No.L 197 of 20-7-1981) 82/436 (J.O.C.E. No.L 193 of 3-7-1982), 84/140 (J.O.C.E. No.L 72 of 15-3-1984) and 84/513 (J.O.C.E. No. L 285 of 30-10-1984).

[36] We are referring here to (EEC) Regulations No. 3827/85 of the Council of December 20 1985 (D.o. No. L372 of 31-12-85); 2224/86 of the Council of July 14, 1986 (D.o. No. L194 of 17-7- 86); 1760/87 of the Council of June 15, 1987 (D.o. No. L167 of 26-6-87); 1094/88 of the Council of April 25, 1988 (D.o. No. L106 of 27-4-88); and 1137/88 of the Council of March 29, 1988 (D.o. NO.L108 of 29-4-88).

- Training and up-grading courses for farmers, members of the family collaborating in farm work and farm labourers over school leaving age.
- Training courses for directors and managers of Associations of producers and co-operatives, as may be necessary to improve the economic organisation of producers and the processing and marketing of agricultural products of the region in question.
- Complementary training courses necessary to attain the professional training level specified in article 7, the duration of which should be at least one hundred and fifty hours.
- It may be appreciated that in the new law the figures of the socio-economic service and advisor have been replaced by the <<agricultural association, the objective of which is the creation of farm management services>> thus according a more important role to the farmer in socio-economic information activities.

As can be observed from what has been discussed here, the EEC member countries have followed different extension policies. The Community, for its part, has backed and financed advisory activities in socio-economic aspects of farming (above all, management and book-keeping), training courses for young people, specialisation courses or adult retraining courses, as well as training courses for socio-economic advisors. It can be affirmed that, in spite of community budgetary efforts, first with the directive 72/161 and later with Regulation 797/85, the EEC has exerted little influence on extension activities and on organisations which the recommendations and aid schemes were aimed at. However, some authors have pointed out that the homogenising of the extension systems of member countries could be brought about within the EEC by aiming to adapt these systems to the interests of the Common Agricultural Policy. There has even been talk of a <<European extension model>> (ESTRELA, 1989). However, not everything indicates that this will be so. On the contrary, it can be said that, if after the Second World War, a homogenising of government extension policies and organisations occurred in Europe, at present, each country is reinterpreting extension in an idiosyncratic fashion. To give an example of a situation which clearly shows how far the EEC countries are from an international extension structure, some authors have established that in Germany, France and Italy there is a tendency towards a return to the original structure: the local-generalist form of extension. This trend could be due to various factors: amongst others, (a) the dominance of the idea of unilineal transfer of technology: research-extension-agriculture; (b) the consideration of local knowledge systems (where they still exist; (c) a reaction to large systems with over-programming and over- planning, aimed at homogenising activities to allow increased control and evaluation but leading to serious bureaucratic and organisational handicaps; (d) the search for channels of real participation of farmers directly involved in each project; and (e) the realisation that present-day extension models are not backed by any Extension Science, but rather by a Technology based on practical needs which have now been met (<<modernisation of agriculture>>).

In view of the idea that a European extension "model" seems unfeasible, the EC Commission has considered the creation of what we could call a "community extension system". The idea is to establish a network of centres which would deal with information of EC origin -more specifically, <<EC measures adopted in the context of the CAP; agricultural product markets and quality standards; the way in which agricultural income may be diversified and other alternative activities carried out on or off the farm>> (EC COMMISSION, 1990).

As we have already mentioned, the EEC has recently commenced a pilot scheme in the field of private extension in its member countries involving the creation of European centres for information and the promotion of the rural environment, to be run by organisations <<which have good local connections and provide services related to rural development>> (EC COMMISSION, 1990). These centres -which have been called <<Carrefours (Crossroads)will enjoy EC Commission backing to initiate their activities, receiving a grant of up to 10% of their budget up until December 1990. In principle, the strategy of the EC Commission has been to grant a "carrefour" to each member country which has applied for one. So far, Belgium, Denmark, Spain, France, Ireland, Italy and West Germany have a centre of this kind. The seven centres currently in existence <<must hold regular co-ordination meetings supervised by the Commission and provide real information to Brussels on the rural environment and its development>>. Its aims -fixed by the Commission- are summarised by the Carrefour granted to Spain into the following points:

1. <<To inform the inhabitants, associations, companies, collectives, etc. of the rural environment about the policy and provisions of the EC affecting rural and regional development.
2. To facilitate dialogue and co-operation between the above-mentioned players.
3. To facilitate the exchange of experiences between regions with similar problems.
4. To provide Brussels with real information on the rural environment and its development>> (C.E.I.P., 1989).

The creation of the carrefours was proposed in the Commission's Report of 1989 on the future of the rural environment. It provided for the intensification of information aimed at the rural market and it was considered that the extension systems existing in EEC countries <<were not going to be able to cope with the new situation on their own>>[37]. This posture adopted by the Commission continued gaining ground until in June 1990 the <<Proposed Decision of the Council with regard to the creation of a Network of Centres for Information on initiatives for Rural Development and Agricultural Markets called MIRIAM>> was presented. In this proposed decision of the Council, the opinion of the Commission on the need to support extension as regards market and CAP information was made clear.

---

[37] <<At present, the diffusion of agricultural information (in EEC countries) is entrusted to civil servants of central or local administration on the one hand, and on the other, to professional or trade union organizations. The information available through official channels varies greatly from one member State to another as regards ease of access and amount of detail; with respect to non-governmental sources of information, the service they provide is of use, although this is not its main mission. Therefore, it is necessary to step up efforts to provide farmers with the information which will allow them to make decisions connected with the market>> (COMMISSION OF THE EUROPEAN COMMUNITIES, 1990).

The MIRIAM project could be regarded as the agricultural version of the Euro-Info-Centres. The 50 Carrefours which, it is hoped, will comprise the EC agricultural information network by 1992 would cooperate in the near future with the Euro-Info-Centres. Furthermore, the carrefours would work on the line of development of agricultural expert systems proposed in the COMMET Project.

Final Reflection

To conclude this paper, we will reflect upon the possible effects of the MIRIAM project on national extension systems in the European Economic Community.

Firstly, the creation of the carrefours as extension agencies parallel to those governmental systems already existing in EEC countries is a response to the inability of the latter to adapt in a homogeneous way to the needs of the Community as regards agricultural information. This will mean that national extension services will have to compete with the carrefours in the diffusion of socio-economic information connected with the EEC and in the development of new information diffusing, advisory, educational methods etc. (telematics, expert systems, etc.).

Secondly, the fact that the category "carrefour" is to be awarded to <<organisations with good local connections>>, that is to say, that this category cannot only be obtained by governmental extension agencies or farmers' organisations, but by any institution, means that a private sector may develop for the diffusion of socio-economic information produced by the EEC, which may in turn lead to the commoditization of EC information -something analogous to what has happened to USDA information in the United States-. If this were the case, the creation of the EC extension system for the dissemination of socio-economic information which is proposed in the MIRIAM project may lead the governmental extension systems of the different EEC countries into a situation similar to the one in which the American Cooperative Extension Service now finds itself after the formation in the United States of the private sector for the dissemination of agricultural information produced by USDA. In this respect, governmental European extension systems may find their field of activity reduced and have to redefine their aims in the near future.

References[38]

BAN, A.W. van den and HAWKINS, H.S. (1988): Agricultural Extension. Essex - New York. Longman - John Wiley.

BELL, R.L. (1988): "La Transferencia de Tecnologia en la Agricultura". Paper to the Seminario de Extension Nacional. Madrid, November 7th-11th. (mimeo).

BENEDICTIS, M. de (1984): "Les Services de vulgarisation dans une agriculture heterogene, le cas d'Italie" in Economie Rurale, No.159, January-February. pp: 51-57.

BENOR, D. and HARRISON, J,Q. (1977): Extensión Agrícola. Sistema de capacitation y visitas. Washington. World Bank.

BLUM, A. and ISAAK, M. (1988): "Adaptation of the Training and Visit Extension System to Changing Socio-Cultural and Agro- Ecological Conditions". Presentation given at the 7th World Congress for Rural Sociology, Bolonia (Italy), June 25th-30th. (mimeo).

BUNGE, M. (1985): La Investigación Cientifica. Barcelona, Ariel.

COMMISSION OF THE EUROPEAN COMMUNITIES (ed) (1976): "L'information et la vulgarisation agricoles" in Les dossiers de la politique agricole commune, No.48, October, pp: 3-12.

COMMISSION OF THE EUROPEAN COMMUNITIES (1990): "Proposed Decision of the Council with regard to the creation of a Network of Centres for Information on initiatives for Rural Development and Agricultural Markets, called MIRIAM". COM(90) 230 end. Brussels. (mimeo).

DEXTER, K. (1984): "Les services de vulgarisation, les firmes d'amont et d'aval, et les organismes de commercialisation" in Economie Rurale, No.159, January-February. pp: 67-70.

ESTRELA, A.M.V. (1989): "A Vulgarisazão,ao Agricola no Contexto Europeu". Presentation given at the Segunda Semana de Extension Rural. International Cycle of Papers on Rural Extension. Evora (Portugal), January lOth-14th.

F.O.E.S.S.A. (1967): Tres Estudios para un sistema de indicadores sociales. Madrid. Euramerica.

F.O.E.S.S.A. (1970): Informe Sociológico sobre la Situación Social de Espana. Madrid. Euramerica.

GOE, W.R. and KENNEY, M (1988): "The Political Economy of the Privatization of Agricultural Information: the Case of the United States" in Agricultural Administration and Extension, Vol. 28, No.2, pp: 81-99.

HELME, W.H. (1975): "The Agricultural Development and Advisory Service" in Journal of Agricultural Economics, Vol. 16, No.l, pp:53-59.

---

[38] Bibliographical references not developed in the foot notes.

LE GOUIS, M. (1988): Le Developpement Agricole en France (note pour le colloque de Madrid du 7 au 11 novembre 1988"). Paper to the Seminario de Extension Nacional, Madrid November 7th-11th. (mimeo).

LUCAS MARIN, A. (1986): Fundamentos de Teoria sociologica. Madrid. Tecnos.

MANTOVANI, A and BELLANDI, A. (1986): "I Servizi de Sviluppo in Agricoltura" in Terra e Vita, pp: 58-63.

MULLER, P. (1984): Le technocrate et le paysan. Paris. Editions Ouvrières.

NEWBY, H. (1987): "Emergent Issues in Theories of Agrarian Development". Paper to E.S.R.S.' Summer School 1988. Lahti (Finlandia). (mimeo).

O.E.C.D. (ed) (1981): Les services de vulgarisation agricole dans les pays membres de l'OCDE. Paris. Organization for Economic Cooperation and Development.

RÖLING, N. G. (1988): Extension Science. Information Systems in Agricultural Development. Cambridge. Cambridge University Press.

SHANIN, T (1988): "El mensaje de Chayanov: aclaraciones, faltas de comprension y la 'teoria del desarrollo' contemporanea" in Agricultura y Sociedad, No. 48, July-September, pp: 141-172.

SWANSON, B.E. and McCABE, M.S. (1975): International Directory of Extension Organizations and Extension Training Institutions. Wisconsin. University of Wisconsin-Madison.

WEBER, M. (1973): Ensayos sobre metodologia sociologica. Buenos Aires. Amorrortu.

ZUURBIER, P. (1984): "Summary" in De Besturing en Organisatie van de Landbouwvoorlichtingsdienst. Wageningen. Agricultural University of Wageningen, pp:152-153.

New Initiatives of Agricultural Extension Education in Central Europe as Exemplified by Poland

Jozef Kuzma

Following the Second World War, radical reforms in agriculture were carried out in the European countries of the former socialist camp, called the people's democratic countries. After 1945, all these countries introduced the nationalisation of large land holdings or estates, in most cases those exceeding 50 or 100 hectares (Bulgaria, Romania, Hungary, Czechoslovakia, Poland and former German Democratic Republic). After 1950 these countries witnessed a compulsory collectivisation of the remaining private farms. It was only in Poland that due to an outbreak of social unrest in the years 1956-1958 that the process of collectivisation was discontinued and a calculated total of 10.5 thousand collective farms were allowed to be dissolved. Only about 1.7 thousand co-operative farms remained, which were organised on a fully voluntary basis.

As a result of such political changes in Poland, a three tier system of agricultural farms was established. These are private farms, also known as family farms, covering an area of 76% of the arable land; state farms accounting for 19%; and co-operative farms as well as other simple forms of cooperation with about 5.0% of the area. An average size of a family farm in Poland is about 6 hectares. In spite of the fact that 2/3 of arable land is cultivated by these private farmers, they completely depended on state agencies and the state-controlled co-operative sector with respect to the provision of production inputs and sale of their products. Whereas, on state and co-operative farms the capital became immobile since the investments were always an outcome of governmental decisions and the bankruptcy of national enterprises was inadmissible. Likewise, the labour force was also immobile on account of the fact that to obtain an apartment and other social benefits, one was required to be employed.

The countries of Central-Eastern Europe, which have followed the Soviet model of agriculture development, based on a centralised management of relatively large collective or state farms, possessed up to 1990 a negligible percentage of private farms, also known as family farms. A market-based economy was almost completely substituted by a centrally-planned management system, distributing production means and commodities (in the field of investment and to a large extent in sale of farm produce). These countries have trained a relatively highly qualified agronomist and zoo technical as well as specialised personnel. In addition, the governments of these countries have developed, within the framework of the Council for Mutual Economic Aid, an autonomous system of scientific and technical as well as economic information services "Agroinform". So, in these countries there was no need to establish Extension and Advisory Services in Agriculture.

However, Yugoslavia and Poland, which have followed their own socialised model of a partial private system of agricultural development, have consistently organised their own ways of extension education and advisory service in agriculture, creating in this end a national or self-governed agricultural service. The system of agricultural extension education and the need for its modernisation and in particular, an improvement in agricultural advisory service in Poland, have already been presented by the author in papers at consecutive Seminars: The 3rd ESEE in Wageningen (1977), the 4th ESEE in Dublin (1979), the 6th ESEE in Lucca (1983) and the 7th in Asker (1985). Dynamic changes, which followed in Central-Eastern Europe have made the data presented in these papers of factual value.

Political and economic changes in the years 1989-1991, consisting in a transformation from the so-called real socialism to democracy, resulted in both positive and negative effects in the present agrarian policy as well as the situation of the people living by farm production.

In the report of common task force of Poland's Government, the European Common Market and World Bank, drawn together under the leadership of Claude Blanchi (July 1990) stated among others, that Polish agriculture had many positive aspects, which should help it pass from a command-based economic system to a market-based form. They are the following:

- compared to other countries, facing this transformation, the sector of private farms is large and has deeply-rooted traditions;
- the Polish farmers have always displayed their resistance and will for survival, and although this change in economy is rather difficult and rapid, the farmers do not lack imagination and crave for attaining individual success, which is typical of a future businessmen;
- there is a very extensive, however, not always adequate and properly understood infrastructure of farms, a good network of rural roads and electricity, available today in almost all villages. Many subsidies for farms in the last decade, have provided at least this sector with machines, without running into debt. This fact should soften the need for costly investments in the near future;
- Poland has an advantageous geographical situation with respect to the export market, both westwards and eastwards; it can boast of a reasonable rate of exchange for foreign currencies, so it has a convertible currency and practically a free-market foreign trade;
- what is most important, Poland has good basic technology and quite a number of farmers, particularly the younger ones who are well educated;
- plant production is satisfactory, however, it could be considerably improved. Although an increase in yield throughout the last decade was high, the yields are mostly below their capacity; animal production is in generally satisfactory too and veterinary standards are high.

The symptoms of obstacles on the way to transformation are the following:

- mechanisms of price transmission have failed to operate. There are too large of gaps between the prices for farm products on the Polish and world markets; the stored goods (dairy products, cereals) have increased in size; on the farm-produce markets there is too little competition; credit continues to be high and many farm industries face numerous troubles while farmers do not want to raise loans;
- this situation, alarming in itself, is still deteriorating, particularly as the food processing sector in Poland is especially inefficient; this striking inefficiency means that farmers have no stimulus to improve quality or efficiency, since it is possible that these profits could be confiscated in the course of further processing, which leads to a strengthening of self-supporting (autarkic) attitude of farmers.

Thus, it is clear that the sector of agricultural service is critical for the development of agriculture and strictly speaking, for the economy and that the root of the present crisis in agriculture are to be found here rather than on farms themselves. The present crisis does not consist in an insufficient production at a level of the farms. The government has rather to put up with a surplus than with deficiency. Of course, the effectiveness of farms calls for improvement and that can be done. Nevertheless, farmers will not undertake an activity expected from them if profits are wasted through inefficient markets and the processing industry. Thus, the government should give priority to increasing the efficiency of agricultural services. The consequences of an existing incompetence in the sector of agricultural services are far-reaching, being seen far beyond this sector. In reality, they threaten the overall program of reforms in Poland.

Of the external factors, mention should be made of the bankruptcy of the eastern market in 1991 for the Polish farm products as well as too little competition also within the western markets. In addition, an increased import of the cheaper agricultural commodities, mostly subsidised by the country of origin within the European Common Market countries, resulting in a further decline of profitability of farm production in Poland. All these factors result in dissatisfaction of farmers and the peasant parties representing them, with the current agrarian policy of our state. No wonder, they demand a policy based on the principles of "limited" state interventionism through assurance by lower bank-rate credits, warranted minimum prices for some farm produce as well as an introduction of tariff barriers for subsidised farm products from Western Europe, according to the General Agreement on Tariffs and Trade regulations.

How, then does the author of this report see the future of the Polish village and agriculture?

- Agriculture in Poland should become open, in a national and international sense, to attain elasticity and sensitivity to market signals, as well as to be able to utilise a comparative advantage to produce in a competitive way, both for domestic market and for export.
- Agriculture and the sectors of its service should struggle to increase its efficiency and allow mobility of manpower and capital.
- Consideration should be given to rapid and mass privatisation in the sector of agriculture service, and in particular, the food processing and transport industry and also making available production inputs to farms.
- It is recommended to introduce privatisation gradually to state farms and the distribution of state-owned land; a part of state farms, which structurally are not income-generating, could be sold or rented to neighbouring private farmers, whereas other state farms should be given opportunities to develop into large enterprises, however, with certain fundamental changes (e.g. a new management system through the so-called holding companies) with a view to liberating the state or its agencies of the task of direct responsibility for productive farm units and covering their losses as well as to assure highest efficiency of the newly formed units .
- Trade institutions should undertake activities aimed at developing new infrastructure of agricultural markets. The main objective is to provide conditions for developing multidirectional services in the field of market information and a rational form of marketing, based on contracts with instant deliveries and contracts with fixed time-

limits. The point is to develop a whole range of marketing services run by people with professional qualifications (establishing standards of quality, performing market analyses, marketing etc.). This will require a new approach to teaching in business schools.

Bearing in mind a long-term strategy of the program, its realisation will tend to decentralise our economy, regional planning, multi-sector development of rural areas, increasing the standard of living in the country; it should result in an improvement of production factors and bring about a more balanced development affecting production and ecology.

Development Program for the Public Sector Agricultural Extension Service

A term "agricultural extension" can be defined as follows: "services or a system, which through education processes helps rural population develop methods and management practices, increase the effectiveness of production and income, elevate the standard of living and make it possible to accept the gradually-increasing social and educational models of rural life" (Maunder, FAO).

In compliance with this definition a team of experts from the Ministry of Agriculture and Food Economy in Poland worked out in 1990 an alternative project for reorganising the existing national advisory services. A new strategy of extension education and agricultural innovations is based on the principle that the processes of programming and planning must come from the ranks (from the people) and should meet all the needs of family farms and rural population.

In this paper are presented objectives, tasks, methods and rules of financing the public agricultural services. A new management system and proper functioning of agricultural extension should consider the present socio-economic conditions of our country, with particular emphasis on subjectiveness and self-governing of the rural population as well as marketing.

The very essence of this proposal is the reshaping of the national service of agricultural extension, organised so far in the provincial centres of extension in agriculture, into the public service of agricultural extension, having a national-and-social status. Some characteristics that make public service easily discernible from other types of extension services in agriculture are:

- general character: readiness to perform services satisfying various needs of rural population;
- universality of services: equal access of all groups of farmers to educational-and-advisory services;
- socialisation of controlling processes: the effect of the service recipients and their representatives on the range and evaluation of a performed activity;
- a non-commercial character: basic aim is to satisfy needs and not to attain profits;
- openness of any activity.

This concept of agricultural extension is based on the so called systemic, complex (holistic) approach to the farm of the family type, it means, treating it as a production, economic and social system. The basic aim of the public agricultural service will be the assistance extended to farm families towards raising their standard of living.

Detailed aims will be determined by a level of development of family farms. Where there is a low level of technology the task of the public service of extension in agriculture will be to support the development of the methods of production and technology. In the farms with a low management efficiency the task of this service will be to help with increasing agricultural income. Whereas, if agriculture has already attained a high level of development, the extension service will promote a betterment of social conditions of farm families. From the social point of view in the broadest sense of the word, the advisory service is expected to promote the production of sound food policy and to preserve the value of the natural environment in rural areas.

Specific areas of public activities of extension service in agriculture, depending on needs, can involve:

- organisation and management of family farms,
- methods and technology of production,
- subsistence-level farms and home economics,
- life and preparation of rural youth to professional life,
- infrastructure of agriculture and village.

The public agricultural extension service should perform the following functions:

1) Agricultural extension:
   - agricultural advice and consulting,
   - extra-curricular agricultural education,
   - disseminate agricultural information,
   - adaptation and promotion of innovations for agriculture.

2) Research on a local scale and adaptation of the results of the research-experimental institutes and stations to local conditions.

3) Analysis of market demands (analysis and diagnoses of situations on farms and rural areas), designing of farm management,

4) Presentation of farmers´ needs with respect to agricultural science .

5) Service-type activities and, if needed, production activities .

Forms and Methods of Extension

The public agricultural extension service will be realising; its tasks through:

- agricultural advice: individual and in groups (including target groups);
- extra-curricular agricultural education (improving or changing, vocational qualifications of the rural population);

- mass media;
- transfer of technology (extension of the results of studies and other innovations, which help solve problems and favour new developmental conditions).

Individual methods will be given preference on one hand to traditional farms with their owners at a low educational level and on the other hand, to the advanced farms with progressive owners, demanding specialistic knowledge . Group consulting will be provided mostly to the most largest group of farmers, having; farms at an average level of development.

To ensure a high level of advisory services by the public agricultural service it is necessary to equip them with workshops and apertures for analyses, diagnostics and calculation, laboratories for analysis of soil samples, fodder, plant diseases and pest, xerographic devices and microcomputers. Mention should be made that the majority of the hitherto existing, provincial centres of extension in agriculture, have the stations and laboratories for providing services to agriculture and are in possession of the above equipment. However, it should be permanently updated and modernised .

Staff Employment Policy and the Financing of the Public Sector Agricultural Extension Service

In the earlier papers that the author has presented at the proceeding ESEE conferences, I have shown that Poland developed the largest advisory service staff in agriculture (estimated at 19,000 advisors and specialists with high education and some with middle level agricultural education). However, this service was extensively organised and not properly utilised, particularly at the local level.

A further development of agricultural extension requires a new approach to staff employment policy. In the previous model of the function of agricultural extension service, strictly speaking, the technological and specialistic competencies were sufficient. According to a new systemic approach to the function of advisory service, the extensionist will require both socio-economic specialties and methodical qualifications. Of particular importance are skills in identification, analysis and solving the problems of individual farms in conjunction with the market analysis. In compliance with the rules of marketing such service, they should have orientation of when, where and at what price various products should be delivered and sold to farmers.

For work in the public sector the agricultural extension service should engage graduates of Agricultural Universities, having a special training in methodology and practice in professional extension education work. It has been planned to employ the following types of extension service personnel:

- extension workers for a given region: a team of advisors with a considerable increase in the number of local advisors, employed in their area of residence;
- teams of regional and provincial specialists (restricted to a minimum);
- auxiliary personnel.

The future workers of the public sector agricultural extension service should be well-paid and have a feeling of job employment stability. To this end, it is proposed that the level of state financial support to maintain this service could amount to no less than 0.5 per cent of global agricultural production for the past year. It is planned to introduce full or partial reimbursement for individual services requested by peasants (analyses, diagnoses, planning, individual consulting, permanent advice). With a view to assuring the lasting continuity of the extension system in agriculture, it has been proposed to work out a parliamentary law involving agricultural extension.

An Alternative Concept of Improving the Efficiency of the Agricultural Advisory Service

1) To constitute the Agency of Agricultural Services (Claude Blanchi, 1990), in which extension activity should be directed toward an improvement in efficiency, deviating from achieving production goals and production tasks. In this connection, the staff of advisory service ought to be trained toward enterprising and effective farm management, making use of auxiliary personnel (technicians).

2) To constitute a state agricultural extension service: In the case of a pressing policy of interventionism by the state concerning agricultural development and related problems, it may prove necessary to strengthen the role of the state advisory service. Then, it would be imperative to limit the number and range of the tasks of the state advisory service in the realisation of agrarian policy. Such an organisation as the extension service requires subsidies entirely from the state. With a view to satisfying individual needs of farmers, the state may support the establishment of additional private offices of advisory and consulting services.

3) Self-governed agricultural extension service: In case of the withdrawal of state intervention and no further development of local a self-governed service, the state agricultural advisory service should be organised within the Agricultural Chambers, which have a long tradition in Poland or in other agricultural organisations of a self-governed type. This service would realise aims and tasks ordered by the organisation or association; which would also take responsibility for their financial support.

4) Specialistic agricultural extension service: In the case of the necessary support for commercial farm production, specialistic agricultural extension services should be formed by enterprises involving the purchase, processing and supply service. Such services would be supported from tax deductions and grants to those enterprises extending services to agriculture, particularly those concerned with purchase and processing of farm produce.

To summarise, it can be stated that each of the countries of the former socialist camp of Central-Eastern Europe, depending on their chosen way of agricultural development and the direction of the present reforms, carried out under strong pressure for the rights of competitive free-market economy, will create its own specific system of cooperation of applied science and extension in agriculture. The countries, which will return to family farms, can certainly follow the model and experiences of Poland, which like Yugoslavia, has retained private farms and thanks to this decision it has rich experience in organising extension services.

Low Farm Incomes in Ireland and Their Implications for Extension

J. Phelan and A.P. Markey

Rural society in Europe is undergoing far-reaching changes. The pressure for these adjustments has increased in recent years with efforts to reform the Common Agricultural Policy and the ongoing negotiations concerning GATT. As a result of these changes agriculture has lost a great deal of its importance in many rural economies. In 1988 in only ten per cent of the 166 regions in the EC did agriculture account for more than ten per cent of regional product (Future of Rural Society, 1988).

A key role performed by agricultural extension in the past has been to help farmers adjust to changing circumstances. These adjustments were mainly made within agriculture, however in the real world of today, solutions to these adjustment problems will have to be found outside agriculture. Extension services too have been subject to pressures of adjustment. Reductions in state support and an emphasis on charging for services has meant a concentration on sectors who had the capacity to pay and on services for which there was a demand. In this paper, we propose to examine the changing structures of farming in Ireland particularly regarding sources of income and to assess the implications of these adjustments for the provision of extension advice in the future.

Data Sources

The main data sources used in this examination are the Household Budget Surveys (HBS) for 1973, 1980 and 1987 (Central Statistics Office). These are the most extensive sources of information available in Ireland with the HBS results for farm households in 1987 published in June 1990. The HBSs were carried out on random samples of all households in Ireland. This examination is primarily concerned with farm households which are so classified in the HBS according to the self-reported principal gainful activity of the head of household.

Personal income, as distinct from income from the activity of farming alone, was used as a more appropriate indicator of the welfare of the agricultural population as it takes all income sources accruing to the household into account. The logic behind preferring the household rather than the individual as the income unit when assessing personal income is that members of the household and especially married couples and their dependent children usually pool their incomes and spend on behalf of their members jointly (Hill, 1989). While income from farming is important in assessing the contribution made by productive agriculture to many farm households it is inadequate as a measure of the total income situation particularly as many farm households are increasingly supplementing this income with income from other sources.

For the purpose of this study gross household income was divided into three sources: income from farming; other direct income; and transfer payments (Co-operation North, 1991). Other direct income includes earned income as employees or self-employed off the farm as well as investment and property income and retirement pensions. All state pensions, allowances and social welfare come under transfer payments.

Base Year 1987

The problems associated with selecting any one year as the centre of focus for income analysis are well known. However, since 1987 is the year for which the most recent comprehensive income data are available, it is logical to begin at this point. The household income situation for later years can be estimated using less complete income indicators which are available for those years. The year of 1987 was an average year and is a good summary of farming performance for the period 1986 to 1990. The real income figures used in this study are adjusted to 1987 levels using the Consumer Price Index.

Farm Household Incomes 1973 - 1987

The contribution of the above mentioned sources of income to household income is shown in Table 1 for 1973, 1980 and 1987.

Table 1: Real Income Sources of Farm Households 1973,1980 and 1987 (1987=BASE, IR£/Week)

Income Source	1973	1980	1987
Farming	146.5 (70.1%)	119.4 (58.8%)	131.4 (54.2%)
Other Direct Income	39.8 (19.1%)	53.7 (26.3%)	68.6 (28.2%)
Transfer Payments	22.6 (10.8%)	31.1 (15.2%)	42.7 (17.6%)
Gross Household Income (GHI)	208.9 (100%)	204.2 (100%)	242.7 (100%)

Gross household income of farm households showed a slight decline from 1973 to 1980 but it increased by almost 19 per cent from 1980 to 1987. Real farming income, on the other hand, declined from 1R£146.5 per week in 1973 to IR£119.4 in 1980 but recovered somewhat to IR£131.4 in 1987. However, the 1987 figure was 10 per cent less in real terms than that which prevailed in 1973. Other direct income and transfer payments have increased significantly over the period with other direct income increasing by 35 per cent from 1973 to 1980 and by almost 28 per cent from 1980 to 1987. Transfer payments have increased in real terms by 38 per cent from 1973 to 1980 and by 37 per cent from 1980 to 1987. The declining contribution of income from farming to gross household income is also evident from Table 1. In 1973, this source accounted for 70 per cent of gross income, it dropped to just over 58 per cent in 1980 and has declined further to 54 per cent in 1987.

While these figures show the national picture great variation in household income was found when the national averages were desegregated by region, farm system and farm size. Change in income from farming was the major source of these variations. Income from farming was consistently higher in the East of the country, on farms with a significant dairy component and on farms of over 100 acres.

Income Sources of Farm Households Classified By Amount of Income, 1987

Table 2 summarises the level of gross household income and the contribution of the different sources of income to this income for the bottom and top 30 per cent income categories of farm households.

Table 2: Income Sources for Bottom 30% and Top 30% for Farm Households, 1987 (IR£/Week)

Category	Income from Farming	Other Direct Income	Transfer Payments	Gross Household Income
Bottom 30%	32.5 (44.2%)	5.1 (7.0%)	35.4 (48.4%)	73.0 (100%)
Top 30%	274.1 (56.4%)	167.2 (34.4%)	44.9 (9.2%)	454.2 (100%)

One might expect that where farming income is high there would be less of a tendency to seek income outside the farm. It could also be argued, on the other hand, that income earned off the farm is being used for farm development and thus increases the income from this source. The top 30 per cent of farm households had gross household incomes almost seven times greater than that of the bottom 30 per cent. Other direct income was a significant factor in causing this difference with very low levels being obtained by the bottom 30 per cent. The importance of transfer payments in supporting lower incomes is also evident.

Of those who stated that the primary principal occupation of the head of household was farming, approximately 58 per cent had no other source of earned income while the remainder had additional earned income in the household. Table 3 compares the income of these two farm household groups.

Table 3: Farm Households Income for those with and without Off-Farm Earned Income, 1987 (IR£/Week)

	All Farms	Without Earned Income	With Earned Income
Gross Household Income	242.6	181.9	325.56

The farming sector with other earned income had household incomes almost eighty per cent higher than that of those with no additional source of earned income. It is clear that farmers are not a homogeneous group, that wide variations in income occur within the different categories in the sector. Those who have other sources of earned income in the household compare very favourably with other groups in the economy while those without this source lag seriously behind.

Low Incomes in Farm households

The Economic and Social Research Institute of Ireland (ESRI, 1989) conducted a survey in 1987 on poverty, income and welfare for a sample of all households in the State. The data presented in Table 4 describes the risk of poverty for farm families and compares it with that of the State.

Table 4: Risk of Poverty for Farm Households 1973, 1980 and 1987 (50 Per Cent Relative Poverty Line)

	1973	1980	1987
Farmer	21.2	27.0	35.8
State	17.7	16.8	17.5

The risk of poverty was defined as the probability of falling below a poverty line faced by members of that group as measured by the proportion of that group that fall below the income standard for the State. These data show that the risk of poverty within the farming community is significant. The high percentage of farmers at risk in 1986 in the ESRI survey was attributed to low incomes from farming activities in that year. However, the 1987 HBS data show that just under 25 per cent of farm households were in the risk category based on the 50 per cent relative poverty line. This figure was more than double that of the self-employed, non-farm sector and almost seven times that of employees. It was also significantly higher than the 21.2 per cent figure for 1973, which would suggest that the risk of poverty is increasing among the farming community. With the current information available it is difficult to quantify exactly the extent of poverty in different types of farm households. However, if a relative poverty line was set at the 60 per cent level, the average disposable income of all cattle farmers was only IR£21 over this level. The average disposable weekly income of farm households who had no source of earned income other than from farming was almost IR£178. If dairy farmers with more than 100 acres were removed from this group a high percentage of those remaining would be close to or below the 50 per cent relative poverty line.

It is clear from the above analysis that there is a serious low income problem within the farming sector. Farm households where agriculture is their major source of income and, who are mainly dry stock farmers with less than 100 acres of land are those most seriously affected. This category had a low income base in 1973 and the rapid decline in income from farming for this sector must cause serious concern. In addition, it is likely that dry stock farmers with larger acreage's and dairy farmers with limited quotas face considerable risk.

Implications for Extension

The above analyses clearly show the emergence of three main groups in the farming community in Ireland.

1. A small group of resource rich farmers who have the capacity to compete in the markets of Europe. This group comprises the larger dairy farms, and some quite large dry stock and tillage farms.
2. Farmers with considerable agricultural resources but where even at the most efficient production levels agriculture alone will not be able to provide a viable future. This group consists of small to medium sized dairy farms, the majority of dry stock farms and some tillage farms. It will be the largest sector of Irish farmers.
3. Resource poor farms where little progress or where decline over the last two decades has been the norm.

The current extension system in Ireland is mainly based on fee paying clients, some of whom in recent years because of reduced margins from farming are becoming less willing to pay for advice. The service is also mainly agriculturally oriented with efficiency as a key element in its focus.

The categorisation presented above shows that the clientele for this type of service are decreasing. It is, however, necessary for all of group 1 and for some of the better farmers in group 2 where farming will be the major income contributor to household income. This group needs good non-biased advice supported by relevant research and technology development. They are capable and willing to pay for such a service. It is conceivable that such support could be given by a non-state supported consultancy service and agri-industry. However, since this is the group that will contribute most to national agricultural output and to the industrial sector of agricultural processing, inputs, etc., it is desirable that some element of state direction should be maintained.

For many farmers in groups 2 and 3 the major focus of extension must be in supporting non-farm income sources which will add to the farm income. Income from off-farm employment, and direct income payments particularly for group 3 will be the major sources of income. Many of these direct payments are likely to be related to encouraging environmentally friendly practices in the future.

This latter mentioned group of farmers and many rural dwellers who are not farmers need a rural development type service which will help them to maximise output from all the resources (both farm and non-farm and human) available in the area. It is evident therefore that the clientele and the job to be done with this group is quite different than that mentioned for group 1. This service must be free and needs considerable financial support if it is to be effective in slowing down the exodus from rural areas which is a problem in many parts of the European Community. It should also be remembered that it is the loss of farmers which has the most significant effect on rural areas as their loss more than any other group will change the face of the countryside . However, many of the solutions to the problems of this group will have to be sought beyond the farm gate.

The above differentiation in the future demands on extension has significant implications for institutes training extension personnel. The technical production expert with good communication skills etc. will be less in demand however these skills in addition to increased environmental and market/business knowledge will be required to support the "commercial" sector of agriculture. The demand for rural development type skills to service the adjustment of the increasing marginalised sector will increase. This person does not require a strong technical knowledge of agriculture, indeed knowledge of other disciplines may be more important and his or her ability to co-ordinate and facilitate the promotion and servicing of rural/community development efforts will be vital.

If extension continues with the traditional focus on farm production and on efficiency in a world where the political voice of farmers is weakening and in an economic environment where market pressures will force further adjustment, justifying state support will become more difficult. It is the challenge for extension to expand its base and provide professionals that are urgently required for a new and growing demand.

References

Co-operation North, (1991), Study of Farm Incomes in Northern Ireland and the Republic of Ireland. Third Study Series, Report No. 1. Dublin, Ireland.

ESRI, (1989), Poverty, Income and Welfare in Ireland. Paper No. 146, September,1989. Dublin, Ireland.

Commission of the European Communities, (1988), Future of Rural Societies. COM (88) 501 final, Brussels.

HILL, B., (1989),Farm Incomes, Wealth and Agricultural Policy. Avebury, Gower Publishing Company Ltd., Croft Rd., Aldershot, UK.

Household Budget Surveys, 1973,1980 and 1987 Central Statistics Office, Dublin, Ireland.

Extension Activities and Rural Development in Slovenia

Franc Suncic

The paper describes Slovene tendencies towards emancipation, Slovene frontiers, the most important agricultural regions and the development of the extension service. From 469 questionnaires sent, 204 (43.5%) were returned. On the basis of these answers, the paper presents the age of our extensionists and the formal education level, which is improving. The paper also presents the dynamics of employment as fluctuation or employment change of extensionists and the degree of satisfaction with their jobs. The data are given for each of the 7 regions.

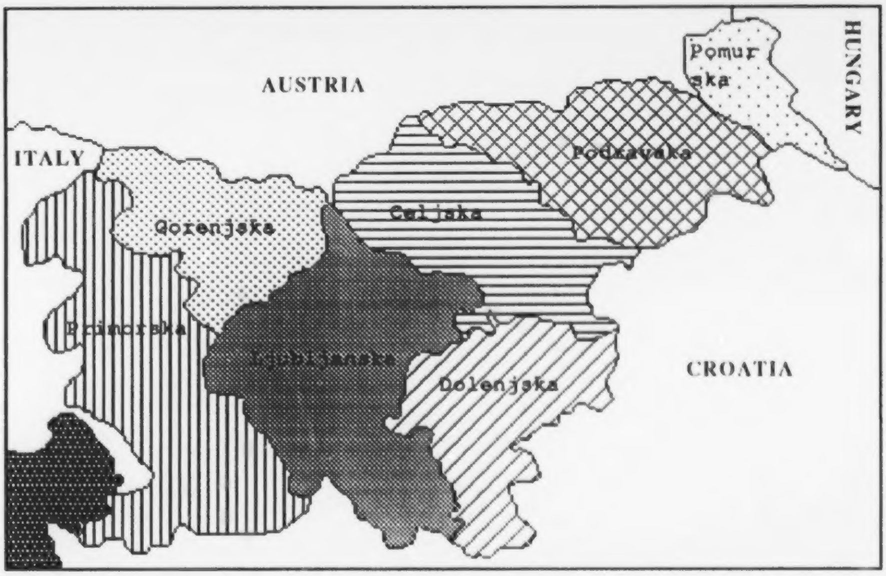
A Short Description of the Republic of Slovenia

Slovenia is a small Yugoslav republic trying hard to become sovereign and independent. On June 25, 1991 its autonomy was announced but only a day later a short war began. We were attacked by the Yugoslav Army.

Slovenia has 4 neighbours, Italy in the west, Austria in the north, Hungary in the east and Croatia in the south. The total size is 2,025,347 ha, it has 869,829 ha (42.9%) of agricultural land, 1,009,468 ha (49.9%) of forests and 146,050 ha of barren earth. In Slovenia, there are mainly three climate types: Pannonian (Continental), Alpine and Sub-Alpine, and Mediterranean. Slovenia has 46.6 km of coastline.

At the end of 1989, it had 1,996,377 inhabitants; approximately 8% of the former Yugoslav population. The proportion of farming peasants decreased after the second world war. In 1945, it was approximately 45%, in 1990 only 8%. From the point of farm production and extension activities Slovenia is geographically divided in 7 regions: Pomurska, Podravska, Celjska, Dolenjska, Ljubljanska, Gorenjska and Primorska (See Map.1).

Map 1: The Seven Regions of Slovenia



Extension activities have nearly 300 years of tradition, according to the data of Academia Operosorum. edited in 1693. An important period is the one from 1945 till today. It can be divided into two parts, the first from 1945 until 1969/70 and the second from 1969/70 to 1990. The former sub-period coincides with revolutionary changes and the beginnings of socialist and self-managing society in Yugoslavia; they all caused changes in agriculture and especially in extension work. In the latter sub-period, the extension system was evaluated in a different way and also got new tasks, which mainly represented the orientation of farms. In 1991, a new period started. The former extension service changed their name, they became advisory, and their activities became public.

Study Methods

Slovenia was a socialist country for 45 years. In 1990, we had the first free election. As a result of the election a multi-party political system was introduced. This change and the forthcoming market economy caused great changes in agriculture and in extension work. That is why we decided to send questionnaires to Slovene extensionists. The questionnaires were anonymous and not required to be returned. In November 1990, they were sent to home addresses of 469 extensionists of Slovenia. 204 questionnaires were returned. They included 30 major questions and 180 sub-questions.

The survey method is not used much in Slovenia and this was one of our first studies in which we made use of it. We think, the number of answers is quite satisfactory. Results of our research are representative and can help to evaluate the extension work done up to now. It can also serve as a useful tool to advise on how the new extension service should be organised and how they should function. All the questionnaires received up to January 1991 were computer processed. We have formulated over 100 tables of various data, opinions and suggestions. The data will be edited in a book.

The Aim of My Contribution to This Seminar

I want to present some findings on extension work in the particular case of Slovenia. I hope you become acquainted with it, and through the discussion a possible exchange can occur concerning our mutual experience to develop new ideas, suggestions and possible solutions to improve our extension work in the future.

Research Results

Some of the results will be shown here: the number of extensionists, their characteristics regarding gender, age, education, work, employment dynamics, degree of satisfaction with their jobs, kinds and duration of activities, and others.

Age of Extensionists

Our youth and professional knowledge are a safe and strong basis for development in all the spheres. This is also true for extensionists in our country (See Table 1). 204 questionnaires were answered, 130 (63.7%) by men and 74 (36.3%) by women.

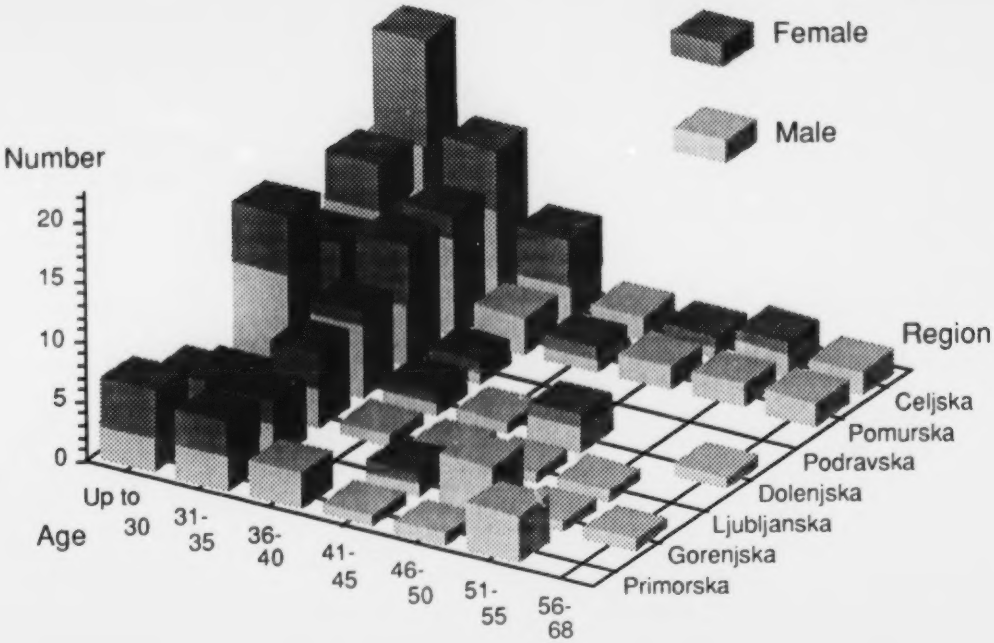
Table 1: Age of Our Extensionists, Number and Characteristics According to Their Gender, Their Total Number

Age	Male		Female		Total	
	No.	%	No.	%	No.	%
Up to 30	41	20.1	37	18.1	78	38.2
31-35	43	21.1	23	11.3	66	32.4
36-40	13	6.4	7	3.4	20	9.8
41-45	6	2.9	3	1.5	9	4.4
46-50	11	5.4	2	1.0	13	6.4
51-55	10	4.9	1	0.5	11	5.4
56-60	6	2.9	0	0.0	6	2.9
No answer	0	0.0	1	0.5	1	0.5
Total	130	63.7	74	36.3	204	100.

The majority of extensionists are relatively young people. The study found that 80.4% (97 men and 67 women) are 30 to 40 years old. It was surmised that in absolute and relative terms more men than women belong to the higher age classes of 41 to 60 years. The oldest woman is in the class 51 to 55 years old, and in this class there are 6 men, 56 to 60 years old.

There are big differences in the number, age and gender of extensionists in regard to the various regions. In Celjska and Dolenjsla regions, the extensionists are the youngest. In Primorska region, the greatest number of extensionists are 51 to 55 years old. They are mainly male. The oldest female extensionist is in Celjska region, she belongs to an age group ranging from 51 to 55 years old. In Pomurska, Celjska, Dolenjska and Gorenjska regions there are 6 male extensionists at 56 to 60 years old. These are our oldest extensionists. Female extensionists at 56 to 60 years old haven't been found in the returned questionnaires (See Graph 1).

Graph 1: Age of Extensionist by Age Groupings in Different Regions of Slovenia



Formal Education

In our country and all over the world, it has been greatly discussed the educational level advisors should have. This is a complicated question concerning many spheres. People need different kinds of advice as to what food they should eat to remain healthy and vital, what to do with money investments and how to keep it safe and profitable, what to grow to earn more, etc. It requires a special professional knowledge if we want to advise on such questions.

So, the educational level of people professionally counselling farmers is important. That is why we were interested in the formal educational level of Slovene extensionists. The data are shown in Table 2.

Table 2: Number and Proportion of the Formal Educational Level of Men and Women Extensionists and Total

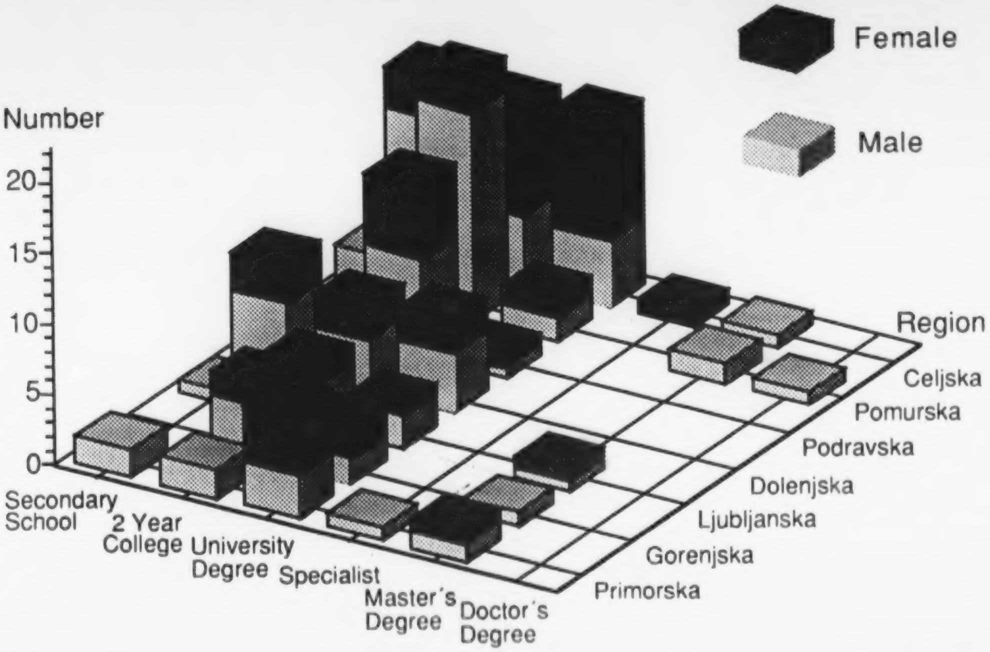
Education Level	Male		Female		Total	
	No.	%	No.	%	No.	%
Secondary school	30	14.7	6	2.9	36	17.6
2 year college degree	59	28.9	30	14.7	89	43.6
University degree	30	14.7	34	16.7	64	31.4
Specialisation	1	0.5	1	0.5	2	1.0
Master's degree	7	3.4	2	1.0	9	4.4
Doctor's degree	1	0.5	0	0.0	1	0.5
No answer	2	1.0	1	0.5	3	1.5
Total	130	63.7	74	36.3	204	100.0

Two male extensionists and one female extensionist didn't answer the question about the degree of their formal education. The two year college degree prevails (43.6%). The extensionists have the following educational level: 31% a university degree, 18 % a secondary school, 4.4% a Master's degree, 1% specialisation, 0.5% Doctor's degree. In 1991, the character of extensionist's formal education will change. Those having only a secondary education diploma will be required to have a higher degree or change their job. As regards to the gender of the extensionist, there is a difference in the degree of education. The proportion of female extensionists having a university degree (16.7%) is relatively higher than that of men (14.7%). More men than women have Master's degree, and one man has a Ph.D. degree.

We could assume the effects of the extension service to be better in the regions where extensionists have a higher formal degree of education. So lets see their degree of education for different regions of Slovenia (see Graph 2).

Among the regions, there are differences. In Pomurska and Podravska regions, the number of extensionists having a two year college degree is many times higher than extensionists having a university degree. In Pomurska region, the majority of extensionists having a two year college degree are men. In Podravska region, the number of men are the same as that of women. There is a female specialist in Celjska region and a male specialist in Primorska region. There is a female extensionist in Ljubljanska region, and another in Primorska region having a Master's degree. There is a male extensionist with a Master's degree in Ljubljanska region and one in Gorenjska region. The only PhD., who answered our questionnaire, works in Pomurska region .

Graph 2: Formal Education of Extensionists in Various Regions of Slovenia



Major Tasks

There were many discussions and a lot of time spent to define the extensionists' tasks. The Method of Mutual Systematic Decision Making (MSE) was also used for the same purpose. The jobs and tasks of extensionists are defined on their level of expertise. They work out to be:

- **in basic agricultural extension** (direct contacts by extension officer - farmer level)
- **in regional institutions** (giving expert advice to extension officers working in basic agricultural extension services)
- **in Agricultural Extension Centre of Slovenia - AECS** (organisation, co-ordination and management of advisory activities and tasks of Slovene agricultural extension work).

We found that 177 extensionists working in basic agricultural extension network answered our questionnaire. Their typical jobs are as follows:

- production organiser,
- general extensionist,
- specialised extensionist,
- specialist for land reclamation,
- head of extension service

A great number of them {106 (52%)} are general extensionists, the study found 69 (33.8%) of them are men and 37 (18.1%) women. There are 36 (17.6%) extensionist specialist broke down as 16 men and 20 women. It seems that more women than men have a narrower range of work. Among 14 heads of extension services, there are 9 male and just 5 female. There are 12 production organisers and 5 extensionists dealing with agricultural land reclamation. The general extensionists mainly have a 2 year college degree, a more specialised university degree. 13% of extensionists answered that they work in regional institutions. There are 7 such institutions in Slovenia. Extension Service Centre in Ljubljana has also two departments, one is located in Novo Mesto and the other in Kranj.

At the regional institution level, there are 12 different expert profiles. The returned questionnaires identified 7 extensionists working at these extension centres who also mentioned other tasks. Their degree of education is favourable, they mainly have university degrees. The study found that 6 of them have a Master's degree, one of them has a Ph.D. degree. There is just one with a two year college degree.

The experts working at AECS didn't answer our questionnaire. By using the MSE method, 9 expert profiles were defined: 1) head of the centre, 2) advisor for plant production, 3) advisor for livestock production, 4) advisor for information and documentation, 5) advisor for development of areas with limited activities, 6) advisor for household and farmer's family problems, 7) advisor for supplementary activities, 8) advisor for permanent training and methodology of extension work. 9) advisor for economics and farm organisation.

Employment Dynamic

Extensionists were asked about their first date of employment as an extensionist. Table 3 gives their answers. Four (2%) extensionists didn't answer this question. The majority of extensionists (200 people or 98%) gave us the following answers:

- The first group of 4 male extensionists started their work in 1961.
- In 1967, the first female extensionist started to work. At this time another 7 male extensionists started their work.
- In 1973 another female extensionist got her job. At that time another 13 male extensionists were accepted.
- In 1976, two additional women were employed. From 1974 till 1976, 6 men were employed
- From 1976 till 1990 the employment of women increased considerably. Their employment number was nearly the same as that of men. In 1990 only two female extensionists got a job and none for men. Maybe these results show the feminisation of extension work ?

Table 3: Number and Proportion of First Employment as Extensionist by Gender (Total = 100)

Year of first employment	Male No.	Male %	Female No.	Female %	Total No.	Total %
1961	4	2.0	0	0.0	4	2.0
1962	1	0.5	0	0.0	1	0.5
1963	0	0.0	O	0.0	o	0.0
1964	2	1.0	O	0.0	2	1.0
1965	1	0.5	0	0.0	1	0.5
1966	2	1.0	O	0.0	2	1.0
1967	1	0.5	1	0.5	2	1.0
1968	0	0.0	O	0.0	o	0.0
1969	1	0.5	0	0.0	1	0.5
1970	2	1.0	O	0.0	2	1.0
1971	2	1.0	O	0.0	2	1.0
1972	5	2.5	0	0.0	5	2.5
1973	3	1.5	1	0.5	4	2.0
1974	1	0.5	0	0.0	1	0.5
1975	2	1.0	O	0.0	2	1.0
1976	3	1.5	2	1.0	5	2.5
1977	5	2.5	0	0.0	5	2.5
1978	4	2.0	3	1.5	7	3.4
1979	3	1.5	4	2.0	7	3.4
1980	6	2.9	3	1.5	9	4.4
1981	7	3.4	6	2.9	13	6.4
1982	10	4.9	10	4.9	20	9.8
1983	11	5.4	6	2.9	17	8.3
1984	17	8.3	10	4.9	27	13.2
1985	9	4.4	7	3.4	16	7.8
1986	10	4.9	5	2.5	15	7.4
1987	7	3.4	5	2.5	12	5.9
1988	6	2.9	6	2.9	12	5.9
1989	5	2.5	3	1.5	8	3.9
1990	O	0.0	2	1.0	2	1.0
No answer	4	2.0	0	0.0	4	2.0
Total	130	63.7	74	36.3	204	100.0

In the 17 year period, from 1961 till 1977, 36 extensionists began their jobs. It was in Celjska region, where the first extensionist started work. In this region, there were twelve more extensionist than in any other region. The number of extensionist in the rest of the regions were Pomurska 8, Primorska 7. Gorenjska 4. Dolenjska 3. In 1973, Ljubljanska region got 1, and in 1976 Podravska also just 1. In the 13 year period lasting from 1978 till 1990, many extensionists were employed. The average number per year of newly employed extensionists were 2.1 for the period from 1961 till 1977, and 12.5 for the period from 1978 till 1990.

Work Change or Interruption

On meetings with supervisors at various levels, we can often hear that Slovene extensionists have a high turnover in their employment. There was a higher fluctuation of extensionists in the past, say the supervisors in this area. To find out what was the real case, and what were the reasons for it, our questionnaire included the following question: "Did you change your working place? If you did. why?" The possible answers were: 1) I was transferred to another organisation. 2) It was my decision to move to another organisation. 3) I moved to a better position in my own organisation. 4) I went abroad to study for more than a year. 5) I studied in our country for more than a year. 6) I had maternity leave 1X, 2X, 3X, 4X, 5X. 7) I took over the farm. 8) Other reasons. The answers to these questions are shown in Table No. 4.

It is not clear, why 108 extensionists (52%) didn't give any answer to this question (48 men and 24 women). Probably they didn't change their working place. This is our supposition. The question: "Did you have the same working place since you started working?", was not a part of our questionnaire.

Table 4: Present Number and Proportion of Employment Changes by Gender (Total=100)

Working place transfer	Male No.	Male %	Female No.	Female %	Total No.	Total %
1. Transferred	6	2.9	5	2.5	11	5.4
2. One's own wish	17	8.3	5	2.5	22	10.8
3. Promotion	12	5.9	8	3.9	20	9.8
4. Supplement studies abroad (a year or more)	0	0.0	0	0.0	0	0.0
5. Supplement studies in our country (a year or more)	1	0.5	0	0.0	1	0.5
6. Maternity leave	1	0.5	30	14.7	31	15.2
7. Taking over the farm	0	0.0	0	0.0	0	0.0
8. Other reasons	9	4.4	2	1.0	11	5.4
9. No answer	84	41.2	24	11.8	108	52.9
Total	130	63.7	74	36.3	204	100.0

Job Satisfaction

The data about job satisfaction is presented in Table 5. Women are less satisfied than men, none of the women are very satisfied with their job. The finding is interesting and should be studied in detail, the reasons should be found, especially because of the feminisation of the Slovene extension service from 1978 to the present.

Table 5: The Frequency and Percentage of the Degree of Satisfaction with the Job. Answers from Men, Women and the Total.

Degree of satisfaction	Male		Female		Total	
	No.	%	No.	%	No.	%
Not satisfied	19	9.3	16	7.8	35	17.2
Satisfied	102	50.0	55	27.0	157	77.0
Very satisfied	6	2.9	0	0.0	6	2.9
No answer	3	1.5	3	1.5	6	2.9
Total	130	63.7	74	36.3	204	100.0

Tasks in 1989

The preliminary defined tasks are shown in Table 6. The table shows that a great many of the extensionists deal with advisory about cultivation of land and cattle breeding, 133 (65.2%) of men and women; the tasks with the least frequency falls within the area of {5 (2.5%)} veterinary medicine, and 6 (3.0%) on hop growing. Some extensionists deal with poultry farming and strawberry production, {11 (5.4%)}; small cattle breeding, {14 (6.9%)}; and horse breeding, {19 (9.3%)}. More than 20 extensionists have other preliminary defined tasks. 58 people (37 men and 21 women) do tasks that are not defined jobs of extension.

Table 6: Extensionists' Tasks by Frequency and Percentage (Number of Tasks for Men, Women and Total) 204 persons = 100%

Sphere of activity	Male		Female		Total	
	No.	%	No.	%	No.	%
1. Cultivation of land	87	42.6	46	22.5	133	65.2
2. Wine growing	27	13.2	11	5.4	38	18.6
3. Hop growing	4	2.0	2	1.0	6	2.9
4. Pasturing	63	30 . 9	31	15 . 2	94	46 .1
5. Plant protection	81	39.7	40	19.6	121	59.3
6. General ext. activities	74	36.3	41	20.1	115	56.4
7. Cattle breeding	90	44.1	43	21.1	133	65.2
8. Poultry breeding	6	2.9	5	2.5	11	5.4
9. Horse breeding	15	7.4	4	2.0	19	9.3
10. Farm specialisation	78	38.2	36	17.6	114	55.9
11. Farm machinery	31	15.2	3	1.5	34	16.7
12. Supplementary activities	28	13.7	12	5.9	40	19.6
13. Dealing with farm women	13	6.4	31	15.2	44	21.6
14. Fruit growing	28	13.7	10	4.9	38	18.6
15. Horticulture	15	7.4	13	6.4	28	13.7
16 Strawberry production	9	4.4	2	1.0	11	5.4
17. Meadow lands	60	29.4	34	16.7	94	46.1
18. Farm housekeeping	15	7.4	10	4.9	25	12.3
19. Pig breeding	36	17.6	17	8.3	53	26.0
20. Small cattle breeding	9	4.4	5	2.5	14	6.9
21. Veterinary medicine	4	2.0	1	0.5	5	2.5
22. Farm buildings	57	27.9	24	11.8	81	39.7
23. Dealing with young farm people	32	15.7	11	5.4	43	21.1
24. Other activities	37	18.1	21	10.3	58	28.4

Tasks Done During the Period of Extension Activities

The survey of extension tasks and activities is given in Table 7. Data are very interesting. It can be seen that making contracts for sale of crops and livestock is their most frequent job. All extensionists together made 80,604 such contracts, for each of 124 extensionists 650 contracts on average. The next most frequently done job was advising on plant protection, 53,167 times or 402 times per person on average. Advising on the usage of fertilisers was performed 45,475 times or 324.8 times per person on average, and explaining price value questions 38,111 times or 349.6 times per person on average.

Table 7: Tasks Done During the Whole Period of Extension Activities; Average Number of Tasks Done by Men, by Women, and the Total

Tasks	Number of tasks done			Average No. of tasks done				
	Male	Female	Total	Male	Female	Total	Var.	Range
1. Elaboration of reform programmes	8285	4054	12339	123.7	103.9	116.4	2	1200
2. Elaboration of investment production for modernisation	10484	3713	14197	127.9	86.3	113.6	2	950
3. Elaboration of production programmes	9397	1900	11297	149.2	59.4	118.9	1	850
4. Counselling on plant protection	39827	13640	53467	468.6	284.2	402.0	12	4500
5. Counselling on the usage of fertilizers	33934	11541	45475	368.8	240.4	324.8	6	3900
6. Working out fertilizing plans	10605	3452	14057	137.7	93.3	123.3	4	800
7. Making out plans for economic efficiency of a farm	1651	404	2055	50.0	26.9	42.8	2	600
8. Making contracts for sale of crops and livestock	55790	24814	80604	734.1	517.0	650.0	4	3368
9. Counselling on education possibilities of farmers	9305	2266	11571	136.8	73.1	116.9	5	1000
10.Demonstration experiments	3516	802	4318	49.5	21.7	40.0	1	500
11.Counselling on farm housekeeping	2395	3172	5567	217.7	122.0	150.5	1	700
12.Dealing with young farmers	1902	654	2556	38.0	27.3	34.5	2	120
13.Dealing with farm women	369	1050	1419	18.5	29.2	25.3	2	100
14.Counselling on supplementary activities	1733	295	2028	33.3	10.2	25.0	1	250
15 Explaining price problems	30292	7819	38111	432.7	200.5	349.6	12	4500

The data on total number of tasks performed in various regions are given in Table 8. The data show that in Pomurska region 3.4 times more work has been performed than in Ljubljanska region. The readers themselves can evolve their own ideas or mutual connections on the basis of their analysis obtained by the data.

Table 8: Tasks Done in Different Regions of Slovenia During the Whole Period of Extension Activities

Number of farm Tasks	Total number of tasks done during the whole period of extension activities								
	Region not known	Pomur.	Podr.	Celj.	Dolenj.	Ljublj.	Gorenj.	Primor.	All of the Regions
1. Elaboration of reformed programmes	300	2910	1633	2688	1567	435	2335	471	12339
2. Elaboration of investment program for modernisation	210	3457	1400	2623	1568	486	2277	2176	14197
3. Elaboration of production progr	330	2745	1985	2056	1625	575	1190	791	11297
4. Counselling on plant protection	1100	16102	4749	7665	10295	1940	4303	7313	53467
5. Counselling on the use of fertilisers	1300	12104	4808	8150	6919	2615	4882	4697	45475
6. Making fertilising plans	260	4204	1892	1919	1555	730	2157	1340	14057
7. Making plans for economic efficiency of a farm	0	961	437	317	117	105	11	107	2055
8. Making contracts for sale of crops and livestock	1200	14364	10808	14259	12309	7750	7926	11988	80604
9. Counselling on education possibilities of farmers	150	2045	2210	1649	2141	990	1756	630	11571
10. Demonstration experiments	530	887	550	834	485	253	403	376	4318
11. Counselling on farm housekeeping	80	2150	374	1525	823	355	160	100	12339
12. Dealing with young farmers	40	149	361	956	363	333	269	85	2556
13. Dealing with farm women	0	230	169	433	152	207	146	82	1419
14. Counselling on supplementary activ.	20	466	183	408	278	209	119	345	2028
15. Explaining price problems	1100	10192	2790	6928	7170	4200	2953	2778	38111
Total	6620	72966	34349	52410	47367	21183	30887	33279	299061

Contribution to Attain Quicker Rural Development

The priority strategies for rural development have been identified by our study group. We believe the necessary rural development contributions or factors are the following:

- optimal use of agricultural land,
- keeping the rural area populated.
- environmental protection and producing the food that suits ecological needs,
- quality market oriented farms.

- qualified producers for better production, especially for better production of crops typical of the region.

In realisation of the above mentioned strategies, the contribution of extensionists can be extremely important. That is why their qualifications and tasks have been analysed.

Conclusion

The main themes of the paper will be identified. The paper presents the Slovene tendencies towards emancipation, Slovene frontiers with neighbouring countries, most important agricultural regions, main climate types and the development of the extension service.

On the basis of the questionnaire, it was found out that the age of Slovene extensionists is quite favourable, they are relatively young people. The degree of their formal education is also improving. The differences among the regions of Slovenia are considerable in both these criteria.

The extensionists' tasks are defined through "professional profiles" for all three levels of extension activities. The range of their tasks and the number of extensionists dealing with each of them are discussed. It was found that some male extensionists were employed first in 1961, some years later women (1967). After 1978, the employment of men and that of women became more or less equal. The most frequent interruption of extension work was caused by maternity leave, changes in employment by one's own wish or byway of promotions. None of the extensionists did supplementary studies abroad longer than a year and no one took over a farm.

Male extensionists are more satisfied with their work than female extensionists. The extensionists could contribute more to the realisation of aims set for rural development by the elimination of regulatory tasks. Some of their tasks should be changed, simple business activities such as for example making contracts for sale of farm products should be exchanged for more specialised extension educational tasks.

By having gathered all these data, organisers and those financing the extension service have a lot of material at their disposal, which could profitably be used in their future decision-making process.

References

BADER. U. (1991) Organisationsfragen der Beratung im ökologischen Landbau in der Bundesrepublik Deutschland. Berichte über Landwirtschaft, Band 68(4), s. 616-650

BIRNKAMMER, H. (1991) Europäischer Binnemarkt nach 1992 - Chancen und Risiken für unsere bauerliche Landwirtschaft. Berichte uber Landwirtschaft, Band 69(1), s. I-tl

COVAS, Maria das Nerces C.M. (1990) The Family Farming in Portugal - What Extension for its Development? Proceedings of the 9th ESEE in Sweden, Uppsala ISSN 0284-989s, pp. 39-56

KOVACIC, M. (1986) Trebnje Development Project. SodK (19)12, pp. 514-517

SUNCIC, F. (1979) The Origin and Activities "Zivinorejska poslovna skupnost Slovenije" (Livestock Producers' Union of Slovenia). Research report, FB, University of Ljubljana Vol. 33, pp. 249-284

SUNCIC, F. (1982) Economic Evaluation Aspects of Slovene Farming Land. Research report, BF. University of Ljubljana, Supplem. Vol. 7, pp. 107-132

SUNCIC, F. (1986) The Model Research of Natural Circumstances and the Motivation of Individual Food Producers in the Region of Brkini for Intensifying the Agricultural Production. Research report, BF, University of Ljubljana. Vol. 47, pp. 239-2s7

SUNCIC, F. (1988) How to bring Costs Down in Farming - With a Special Stress on the MSE Method. Seminar, Bled 21St to 22nd Nov 1988. pp. 82-91

SUNCIC, F. (1990) Application of the MSE Method in E~tension Services of Slovenia. Proceedings of the 9th ESEE in Sweden, Uppsala, ISSN 0284-9895 pp. 119-134

SUNCIC. F. (1990) Einige Gesichtspunkte der Frauen- und Kinderarbeit in der Landwirtschaft Sloweniens. XXIV CIOSTA/CIGR V Congress, Helsinki. Finland, Aug. 27-30, ISBN 951-788-158-4, pp. 245-249

SUNCIC, F. (1991) Contribution to Advisor's Education. YU ISSN 03501655, SodK s, pp. 205-209

Final Report. Seminar on Efficiency and Methods of Work of the Extension Service, Union of Cooperatives of Slovenia, Ljubljana, 5th May 1989, p. 34

Kmetijska svetovalna sluzba. Program za leto 1991, porocilo za leto 1990, R Slovenija RSKGP, RCPK. Ljubljana, april 1991, s. 269

Own documentation on work; with students and their reports

Organizational Properties: Manifestations of Different Models of Extension Work

M. Hassanullah

A model in extension work is an equivalent concept to production technology in industrial management. It has a profound influence on the design and operation of an organisation and hence on its performance (Woodward, 1965; Pugh, et.al. 1969; Shetty and Carlisle, 1975; Child, 1977; Dewar and Hage, 1978). A model refers to a simple and duplicate able pattern of activities an extension agent follows in educating his or her clients. In other words a model in extension is an out-of-school educational technology. After reviewing the literature, the author earlier identified six basic models with some modification[1] . The choice of a model is a top management decision which affects the entire spectrum of an organisation. The adopted model eventually sets the limits and scope of the educational processes and hence the effectiveness of extension work.

Agricultural and rural extension services of Bangladesh have been adopting different models or changing and modifying their existing models frequently in order to improve their performances (Hassanullah, 1987). The change of model is assumed to be manifested in the changes of the organisational properties which in turn may influence the performances of the organisations. A comparative study of different models is likely to reveal the strengths and weaknesses of different models and redesign them for attaining desirable organisational properties for better performance. This study has been undertaken in order to :

1. Compare selected models of extension work in terms of the different properties of an organisation and its management,
2. Compare the performance of selected extension models adopted by same or different organisation(s),
3. Identify the strengths and weaknesses of selected models in terms of their manifestations in organisational properties.

---

[1] The author earlier reviewed the models of extension work and identified six basic models such as SDM, ASM, MFM, TVM, FLM, and EEM, A pure Service DeliverY Model (SDM) requires an extension agent to sell or distribute inputs and services on cash or credit with oral or written prescriptions about their use. In a pure Advisory Service Model (ASM) the extension agent meets his clients occasionally and simply advises them about what to do and what not to do. The Model Farmer Model (MFM) formally trains a few selected farmers, preferably one from each primary cooperative society to develop them as models assuming that others would learn from them. In a pure Training and Visit Model (TVM) the extension agent is required to contact with a few selected clients termed as Contact Farmers, generally about 10% of the target clients on fixed day cyclic visits and communicate a few learned techniques, named as impact points assuming that they in turn would communicate the same to others. In a pure Functional Literacy Model (FLM) an extension agent needs to organize formal learning sessions and administer a series of simple and structured literacy lessons to evoke critical consciousness among the clients about selected social and technical problems and their solutions. In a pure Extension Education Model (EEM) an extension agent organizes a variety of out of school educational activities as and when required to educate all of his clients about the use of innovations that would solve their problems. (Hassanullah, 1986, PP.55-64; Hassanullah, 1987, PP.47-68)

BEST COPY AVAILABLE

Methodology

The study includes two basic models and one integrated model of extension work. The basic models are the Training and Visit Model (TVM) and the Advisory Service Model (ASM), both of which have been adopted by the Agricultural Extension Service of the Ministry of Agriculture. The Sugarcane Extension Service of the Ministry of Industry originally followed the Service Delivery Model (SDM) and was later transformed into Model Farmer Model (MFM) when it began to work through supervised farmers. It was further integrated with Extension Education Model (EEM) by introducing multiple extension activities such as meetings, demonstrations, visits, etc. It is now called an Integrated Extension Model (IEM).

Samples of 350 service personnel and 887 farmers were randomly selected to estimate the magnitudes and frequency of different organisational properties as well as the performance of the organisations under those three selected models of extension work, viz. (l) Training and Visit Model (TVM), (2) Advisory Service Model (ASM), and (3) Integrated Extension Model (IEM). The distribution of the sample of respondents by using the models selected was as follows (Table l) :

Table 1: Distribution of Sample of Respondents Using Selected Models of Extension Work.

Models	Farmers	Service Personnel
TVM	203	72
ASM	425	169
IEM	259	109
Total	887	350

The samples were drawn from throughout the hierarchies of each organisation. They covered six agricultural districts and four sugar mill zones of Bangladesh. The survey was conducted in 1983-84. The selected models were compared in terms of 62 organisational properties and 8 performance dimensions. The properties relate to strategy, management, staff and resource systems and processes. The performance dimensions were the attainment of professional goals of extension work. The intangible qualitative properties were measured by using Likert Summative Rating Scales[2] and their validity was tested. The test results were presented in Appendix-A. Analysis of variance was used to test the significance of variance and Duncan's New Multiple Range test was used for comparisons among the three models. The means having no or denoted with same symbol are statistically similar in magnitudes. Chi Square was used to test the significance of variability in frequency distributions on the qualitative properties among the models.

---

[2] Likert Summative Rating Scales : A ratio scale designed to measure intangible properties of organizations. First, in a domain of elements a random sample of elements was selected and their prevalences or importances were evaluated by respondents through a graduated scale. The advantage of the scale is to eliminate inconsistent and unreliable elements through item analysis and estimate a more reliable magnitude of a property.

RESULTS AND DISCUSSIONS

Strategic Properties

The strategic properties relate the basic orientation and approaches which determine the scope and limits of extension work. They are often model parameters giving rise to a particular perspective of the management of an organisation.

Client Strategy

The client strategy refers to how the top management intends to deal with clients. It is reflected through the organisations orientation to client needs and aspirations and the scope of clients participation in making decisions. Client orientation, measured in terms of the importance assigned to the clients needs and aspirations was generally at a low level, but it showed significant differences among models. However the client participation in decision making, representing client numbers as a percent of the members of all decision making forums, showed to significant differences among the models selected (Table 2). It seemed that both the Training and Visit and the Advisory Service Models had a similar client orientation, but both had a higher client orientation than the Integrated Extension Model. Comparatively the Integrated Extension Model showed significantly low client orientation because its high commercial orientation in attaining production and input use targets. The intensity of client participation in decision making did not show significant differences among different models of extension work. This implies that none of the models adequately emphasised or made provisions for client participation in decision making. The findings revealed that the Training and Visit Model, although introduced as a new model, has no higher client orientation and participation in the extension system. In fact these issues have not been envisaged as an integral part of the T&V model as originally designed by Benor and Harrison (1977).

Table 2 : Mean Magnitude of Client Strategies Under Selected Models of Extension Work

Properties of Client Strategy	Models TVM	 ASM	 IEM
Client Orientation (Scores : 6-30)	15.43 a	16.27 a	13.48 b
Client Participation (% of participants)	3.84	3.11	9.39

Note : Estimate bearing same or no symbol are not statistically different.

Contact Strategy

Functional exclusivity and universality in contact are two basic strategic properties in establishing contacts with clients. The former indicates the strength of the educational role and latter indicates the extensiveness of direct contacts with clients. Both are decided by top management and are design variables in any model.

The models selected seemed to have significant differences in both properties (Table 3). The Integrated Extension Model of the Sugarcane Extension Service was functionally less exclusive because of its other production and marketing functions. The Training and Visit Model pledged to be functionally exclusive to extension work (Benor and Harrison, 1977, p.11) but in actual operation it has failed to create significant differences with the Advisory Service Model against which it was introduced. The TVM has adopted a highly selective contacts with clients (7.25%), but this is not significantly low compared with the Advisory Service Model (10.51%). The Integrated Extension Model has to have much more universal contact with clients to fulfil its production targets. The Training and Visit Model seems to be characterised by a contradictory approach of functional exclusivity and selective contacts. Since extension agents in TVM are functionally exclusive to educational work, they could be more universal in contact. The model itself restricts contacts with Contact Farmers.

Table 3: Mean Magnitudes of Contact Strategies under Selected Models of Extension Work

Properties of Contact Strategies	Models TVM	ASM	IEM
Functional Exclusivity (% of Time Spent for Extension)	55.57 a	56.49 a	25.40 b
Universality-Selectivity (% of Client Receive Direct Contact)	7.25 b	10.51 b	42.51 a

Note : Estimates bearing same or no symbol are not statistically different.

Technological Strategy

The choices of technologies are also strategic issues which may depend on the orientation and scope of a model. The properties relating to technological choices are the diversity and the adaptability of the technological packages being promoted under the different models. The former implies coverage and the latter appropriateness of the technologies chosen. The selected models varied significantly in terms of both of their technological diversity and adaptability (Table 4).

Table 4: Mean Magnitudes of Technological Strategies under Selected Models of Extension Work

Properties of Technological Strategies	Models TVM	ASM	IEM
Technological Diversity (Scores : 12-30)	18.89a	18.39 b	17.39 b
Technology Adaptability Technology Adaptability	21.08 c	21.95b	22.34a

Note : Estimates bearing same or no symbol are not statistically different.

The Training and Visit Model has been pursuing the diffusion of significantly more diverse technologies having low adaptability as measured in terms of 10 attributes of a technology such as technical soundness, compatibility, easiness to use, trialability, divisibility,

visibility, communicability, labour intensity, capital intensity and profitability. The opposite was true for the Integrated Extension Model of the Sugarcane Extension Service, because of its production orientation of a single crop. The Training and Visit Model succeeded in diversifying the technological coverage, but failed to choose technologies of higher adaptability compared with the Advisory Service Model of the same Agricultural Extension Service. Technological diversity seemed to be the result of technical committees having representation from different departments. Perhaps the choice of technologies is not based on their adaptability but by the portfolio of technologies being offered by different departments. Representation of clients in technical committees might help improve this situation. It seems that TVM is characterised by technology diversity with low adaptable technologies, because of its low client orientation.

Management Strategy

Four major properties of the management strategy have been selected to assess the management perspective of each of the selected models. These are participativeness, coerciveness, performance aspiration and professionalization. These are expected to reflect management styles under different models. The selected models are similar in terms of participativeness (democratic decision making) and the performance aspirations of the professional staff (Table 5).

Table 5: Mean Magnitudes of Management Strategies under Selected Models of Extension Work

Properties of Management Strategy	Models		
	TVM	ASM	IEM
Participativeness (Scores : 8-56)	26.79	23.92	24.08
Coerciveness (Scores : 5-35)	21.07 ab	21.92 a	19.86 b
Performance Aspiration (Scores : 5-35)	33.72	33.28	34.46
Professionalisation (Percent)	78.80 a	59.00 b	31.40 c

Note : Estimates bearing same or no symbol are not statistically different.

The Training and Visit Model seems to fail to affect change among its top management in terms of participation in management decisions. This has possibly lead to failure in terms of creating higher performance aspirations among professional staff. It is characterised by a significantly high degree of professionalisation compared to other models. The Training and Visit Model uses high but similar coercive means to that of Advisory Service Model. The Integrated Extension Model exhibits a low degree of professionalisation as well as a low magnitude of coerciveness possibly because of the liberal recruitment policy employing people with diversified background and education. The TVM is therefore characterised by high professionalisation and is designed on coercive mechanism to get the work done.

Properties of Management Process

Management process refers to the variables relating to the day to day planning and implementing of educational activities of the organisations which are aimed at achieving the professional goals of extension work.

Planning Process

The selected models did not exhibit significant difference in any of the properties of the planning process such as staff participation in programming, program soundness and role conflict (Table 6).

Table 6: Mean Magnitude of the Properties of Planning Process under Selected Models of Extension Work

Properties of the Planning Process	Models TVM	 ASM	 IEM
Staff Participation (Scores : 12-60)	30.72	29.67	27.44
Program Soundness (Scores : 12-60)	35.94	36.25	35.74
Role Conflict (Scores : 10-40)	25.58	22.22	26.15

Note : Estimates bearing same or no symbol are not statistically different.

Staff participation implies the operation of a democratic process of planning. Program soundness and role conflicts are the outcome of these processes. In other words all three selected models pursue similar planning processes with no appreciable change in its manifestation due to the model variable resulting in differences in the outputs of the planning process. Therefore TVM being newly introduced model lacks strong planning orientation.

Organising Process

Except for the magnitude of the tactical authority, all other properties of the organising process exhibited significant differences among the selected models of extension work. It implies the existence of similar degrees of authority in making operational decisions at the grass roots level though the models selected exhibited significant structural difference (Table 7). The Advisory Service Model has the largest size of Primary Administrative Units (first supervisory level : the Upazila or Subzones). The Training and Visit model seems to have the largest number of clients per extension worker. But it had a similar size for its Primary Administrative Units, its span of supervision and its flexibility, when compared with the Integrated Extension Model of Sugarcane Extension Service. The Integrated Extension Model was found to have the smallest number of clients per extension worker with a low magnitude of strategic authority but with the highest magnitude of formalisation. Therefore the Integrated Extension Model is characterised by smaller working and administrative units with a centralised system of decision making by a high degree of formalisation. In this respect, the Training and Visit Model exhibits no significant difference over the Advisory Service Model of the same organisation, although it aimed at reducing the extension agent-client ratio, the span of supervision and centralised decision making (Benor and Harrison, 1977). These properties of the models could not be operationalised because they are highly institutionalised through state bureaucracy.

Table 7: Mean Magnitude of Properties of Organising Process under Selected Models of Extension Work

Properties of Organising Process	Models TVM	 ASM	 IEM
Size of Primary Administrative Units (Sq.Miles)	91.57 ab	125.08 a	69.42 b
Size of Clients (00 per Ext.Worker)	11.34 a	8.06 b	2.67 c
Span of Supervision (No.of Staff/Supervisor)	19.00 b	35.54 a	13.58 b
Strategic Authority (Scores : 10-50)	24.53 b	27.25 a	22.91 c
Tactical Authority (Scores : 10-50)	28.24	29.89	27.81
Formalisation (Scores : 12-48)	39.00 b	39.31 b	40.87 a
Flexibility (Scores : 9-45)	24.78 ab	25.66 a	23.53 b

Note : Estimates bearing same or no symbol are not statistically different.

Staff Management Process

Salary and incentive to staff were significantly higher under the Integrated Extension Model as compared to other extension models (Table 8). This is not in fact a variable in the model but rather an advantage of serving under an industrial enterprise. The difference between the Training and Visit and the Advisory Service Models is not significant because both have national salary grades. Extension managers are most frequently changed under the Integrated Extension Model compared with other two models which have a low but similar frequency of transfer.

Table 8: Mean Magnitude of Properties of Staff Management Process Under Selected Models of Extension Work

Properties of Staff Management	Models TVM	ASM	IEM
Staff's Salary Level (000 Tk/yr)	12.21 b	13.36 b	15.31 a
Staff's Incentive (000 Tk/yr)	0.08 b	0.06 b	1.13 a
Staffs Transfer Frequency (Yrs/Transfer)	2.67	3.92	3.42
Managerial Succession (Yrs/Transfer)	3.69 a	3.21 a	1.67 b

Note: Estimates bearing same or no symbol are not statistically different.

Field staff are transferred with equal frequency thus maintaining the standards of the civil service with 3 years of tenure in a station. The frequency of transfers of both staff and managers is not probably conducive to good extension work which requires a longer tenure to bring appreciative change among clients. The TVM is therefore not oriented to provide incentives and stability of staff.

Implementation Process

All the selected models seemed to have similar magnitudes of supervision, horizontal communication and task as well as relation orientation of supervisory leadership. The Training and Visit Model however aimed at increasing the magnitudes of supervision, communication and task orientation in its leadership style (Benor and Harrison, 1977). These aims were not realised. Significant differences were observed only in the level of co-ordination and supervisors mobility (Table 9).

Table 9: Mean Magnitude of the Properties of Implementation Process Under Selected Models of Extension Work

Properties of Implementing Process	Models TVM	ASM	IEM
Co-ordination (Scores: 6-30)	20.62 b	20.02 ab	21.32 a
Supervision (Hrs/Yrs)	53.14	92.08	120.33
Supervisors Mobility (Days/Month)	12.09 b	13.34 b	19.89 a
Horizontal Communication (Scores: 5-25)	12.43	12.93	12.75
Supervisory Leadership (Relation Orientation Score:6-30)	14.49	15.01	13.98
Supervisory Leadership (Task Orientation,Scores:6-30)	18.76	19.59	19.34

Note: Estimate bearing same or no symbol are not statistically different.

Activities were better coordinated under the Integrated Extension Model and its supervisors were also more mobile. In this respect the Training and Visit Model made no significant difference compared with the Advisory Service Model of the same service. The introduction of the Training and Visit Model could make no qualitative improvements in supervision, co-ordination, communication and leadership orientation for effective program implementation in spite of its pledge to improve those properties of management.

Educational Process

The selected models did not exhibit significant difference in terms of the magnitude of educational activities such as visits, meetings, etc. (Table 10). Educational activities tended to be low under the Training and Visit Model because it primarily depends on visits to selective clients, the Contact Farmers only.

Table 10: Mean Magnitude of the Properties of Educational Process Under Selected Models of Extension Work

Properties of Educational Process	Models		
	TVM	ASM	IEM
Level of Educational Activities (Hrs/Yr)	210.60	286.49	265.45
Clients Participation (Hrs/Yr)	67.20 a	36.43 b	29.49 b
Quality of Client Participation (Scores: 10-50)	20.83 b	20.80 b	23.27 a

Note: Estimate bearing same or no symbol are not statistically different.

But client participation in the educational activities seemed to be the highest under the Training and Visit Model, while the quality of participation as determined by the level of interaction, seemed to be better under the Integrated Extension Model of the Sugarcane Extension Service. The Advisory Service and Integrated Extension Models had similar magnitude of client participation. On the other hand the Training and Visit Model and the Advisory Service Model seemed to be similar in terms of the quality of participation. The Training and Visit Model is therefore characterised by a weak educational process.

Controlling Process

The Training and Visit and the Integrated Extension Models have similar but smaller span of control compared with the Advisory Service Model. Consequently it exercises the highest magnitude of control (Table 11). Although the magnitude of control seemed to be similar under the Advisory Service and the Integrated Models, the later had highly centralised control. The magnitude of punishment seems to be low and similar under all selected models, because punishment as a corrective measure is indeed difficult to impose under the prevailing socio-political atmosphere of the country irrespective of the models of extension work. The TVM therefore seems to be highly pyramidal with inbuilt control mechanism.

Table 11: Mean Magnitude of the Properties of Controlling Process Under Selected Models of Extension Work

Properties of Controlling Process	TVM	ASM	IEM
Span of Control (No)	26.57 b	45.31 a	21.75 b
Magnitude of Control (Scores: 16-80)	30.62 a	28.02 b	26.12 b
Dispersion of Control (Variance of Level of Control)	126.59 a	71.61 b	36.61 c
Magnitude of Punishment (Scores)	26.43	41.69	19.75

Note: Estimate bearing same or no symbol are not statistically different.

Staff Properties

Staff properties refer to variables relating to the staff background, quality and behaviour which determine their capability and confidence in putting the programs into operation. The adopted models due to their preferential recruitment, selection, placement and created managerial atmosphere, may create differences in staff properties.

Staff Background

Professional staff under selected models have similar family size and family income (Table 12).

Table 12: Mean Family Size and Income of Staff Members Working Under Selected Models of Extension Work

Properties of Staff Families	TVM	ASM	IEM
Family Size of Staff Members (No)	8.06	8.72	8.32
Family Income of Staff Members ("000" Tk/Yr)	26.67	25.18	24.47

Note: Estimate bearing same or no symbol are not statistically different.

The staff were randomly distributed in terms of their parents' occupation and their parents representation among elites (Table 13). Significant differences were however observed in the distribution of staff in terms of family types and the rural background. The Integrated Extension and the Training and Visit Models preferred staff with nuclear families with rural background. Most of the staff, however had urban backgrounds (84.3% to 89.6%). None of the extension models is biased in recruiting proportionately more staff with rural backgrounds although majority had agriculture as their parents' occupation. But this may not ensure rural background.

Table 13: Distribution of Staff Against Background Properties Under the Selected Models of Extension Work

Properties of Staff Background	Model						
	TVM		ASM		IEM		
	No.	%	No.	%	No.	%	chi-square
Family Types of Staff Members							
Nuclear	42	52.5	86	47.0	86	54.1	15.95**
.....Extended	38	47.5	97	53.0	73	45.9	(0.188)
Staff Parents Occupation							
Agriculture	46	57.5	104	56.8	84	52.8	6.42NS
Agriculture & Other	17	21.3	54	29.5	42	26.4	(0.120)
Non-Agriculture	17	21.3	25	13.7	33	20.8	
Staff's Rural Background							
Village	3	3.8	2	1.1	6	3.8	17.45**
Town	11	13.8	17	9.3	19	11.9	(0.196)
Elite Representation							
Elite	14	17.5	27	14.8	31	19.5	2.28NS
Non-elite	66	82.5	156	85.2	128	80.5	(0.072)

Staff Quality

The mean magnitudes of some of the properties of staff quality seemed to have significant differences under the selected models of extension work (Table 14). The Integrated Extension Model seemed to have significantly more older and experienced staff with the lowest level of formal education. The opposite was true for Training and Visit and Advisory Service Models. The Training and Visit Model could not recruit significantly more staff with higher qualities. Staff personal qualities, work experience and training showed no significant difference among the selected models. None of the models seemed to give priority to recruit staff with higher quality.

Table 14: Mean Magnitudes of the Properties of Staff Quality Under the Selected Models of Extension Work

Properties of Staff Quality	Models		
	TVM	ASM	IEM
Age (Years)	29.99 b	31.79 b	34.34 a
Education (Years)	13.22 a	12.86 ab	12.04 b
Personal Quality (Scores: 0-100)	63.69	60.51	60.12
Work Experience (Years)	8.40 b	9.79 ab	12.44 a
Extension Work Experience (Man Month)	74.57	92.86	84.79
In-service Training (Man Day)	72.39	43.35	50.19
Extension Training (Man Day)	10.64	4.64	17.72
Organisational Tenures (Years)	5.78 b	7.09 b	11.82 a

Note: Estimate bearing same or no symbol are not statistically different.

Staff Behaviour

Except for anxiety-stress none of the staff behavioural properties showed significant difference under the selected models (Table 15). The staff under the Integrated Extension and the Advisory Service Models experienced higher magnitudes of anxiety-stress on job related issues compared with the Training and Visit Model, because the later had a predetermined work program and the staff had little or no accountability for outputs. None of the models had sufficient influence to make a significant difference in staff behaviour except in the case of anxiety and stress. In other words the human aspects of the staff are overlooked by the prevailing models of extension work.

Table 15: Mean Magnitude of Staff Behavioural Properties Under the Selected Models of Extension Work

Properties of Staff Behaviour	Models		
	TVM	ASM	IEM
Professional Commitment(Percent)(Chi Sq NS)	33.38	25.1	27.7
Motivation (Scores: 0-45)	19.35	19.67	20.52
Job Satisfaction (Scores: 14-70)	32.21	36.07	36.68
Absenteeism (Man/days/year)	13.04	14.16	19.25
Anxiety-Stress (Scores: 9-45)	30.58 b	30.69 b	33.89 a
Intra-Organisational Conflict (Scores 30-150)	47.04	46.92	50.68

Note: Estimate bearing same or no symbols are not statistically different.

Resource Properties

The resource properties relate to resource availability and use, both human and capital for both clients and the extension systems. Both are expected to affect the performance of extension services.

Clients Resources

Clients input need fulfilment was found to be significantly higher under the Advisory Service Model compared with both the Training and Visit and the Integrated Extension Models. Fulfilment of the needs of purchased inputs such as seeds, fertilisers, biocides, etc. was lower under the Training and Visit Model because of its non-involvement in these functions and that of the Integrated Extension Model of Sugarcane, because it fulfils only a part of the inputs for sugarcane cultivation. As regards credit need fulfilment the selected models did not differ significantly because extension personal have little involvement in credit operations. The Integrated Extension Model of the Sugarcane Extension Service though involved in both input and credit functions, did not succeed in creating a significant difference because of its narrow focus and partial involvement in these functions.

Table 16: Mean Magnitudes of Clients Resource Need Fulfilment Under Selected Models of Extension Work

Properties of Clients Resource	Models		
	TVM	ASM	IEM
Clients Input Need Fulfilment (%)	53.45 b	61.62 a	54.12 b
Clients Credit Need Fulfilment (%)	39.90	30.24	36.84

Note: Estimate bearing same or no symbol are not statistically different.

Institutional Resources

As regards the distribution and use of resources the selected models did not exhibit any statistically significant difference among different components of expenses (Table 17). However there were significant differences in overall expenses per client family under the different models. The Integrated Extension Model of the Sugarcane Extension Service spent significantly more money per client family as compared to the Training and Visit and the Advisory Service Models. The latter were similar in expenses per client family, in spite of the World Banks support for the Training and Visit Model. Much of the assistance may have been directed to higher echelons of the organisation creating little differences at the grass roots level of all models.

Table 17: Mean Magnitudes of Institutional Resource Need Fulfilment Under Selected Models of Extension Work

Properties of Institutional Resource	Models		
	TVM	ASM	IEM
Manpower Need Fulfilment (%)	84.54	87.05	92.08
Travel Expenses ("000" Tk/PAU)	26.91	37.14	20.50
Logistic Support ("000" Tk/PAU)	12.30	34.71	50.28
Contingent Expenses ("000" Tk/PAU)	32.97	44.18	60.77
Expenses per client Family (Tk.)	21.24 b	23.86 b	234.79 a

Note: Estimate bearing same or no symbol are not statistically different.

Performance Dimensions

The performance of extension organisations was measured by the extent of attainment of the potential level of professional goals of extension work such as attitude change, knowledge transfer, skill development, technology diffusion, productivity increase, income increase and level of living improvement.

It was found that goal attainment was significantly different under the selected models except for skill development (Table 18). Attitude change, knowledge transfer and technology diffusion were significantly higher under the Integrated Model of the Sugarcane Extension Service. It could not make any difference with the Training and Visit Model in terms of the clients income increase and the level of living improvement. The attainment of the goal of transferring knowledge and the level of living improvement seemed to be higher, the diffusion of technologies was similar and the attitude change, productivity and income increase were found to be lower under the Training and Visit Model compared to that of the Advisory Service Model of Agricultural Extension Service.

Table 18: Mean Magnitude of Performance Dimensions Under Selected Models of Extension Work

Performance Dimensions	Models		
	TVM	ASM	IEM
Attitude Change (%)	81.41 c	82.92 b	86.03 a
Knowledge Transfer (%)	30.58 b	26.49 c	35.81 a
Skill Development (%)	33.60	33.94	33.27
Technology Diffusion (%)	36.67 b	37.43 b	34.63 a
Productivity Increase (%)	17.04 c	20.24 a	19.26 b
Income Increase (%)	19.04 b	22.67 a	19.75 b
Level of Living Improvement (%)	8.06 a	5.80 b	7.80 a
Performance (%)	37.44 b	37.83 b	41.43 a

Note: Estimate bearing same or no symbol are not statistically different.

On average overall performance seemed to be higher under the Integrated Extension Model of the Sugarcane Extension Service compared with both the Training and Visit and the Advisory Service Models of the Agricultural Extension Service. The latter exhibited no significant difference in performance. The Training and Visit Model could not perform better compared with the Advisory Service Model because its failure to create significant differences in most of the structural behavioural properties of the organisation.

Conclusions

The Training and Visit, The Advisory Service and the Integrated Models of extension work did not show difference in terms of client participation, management participativeness, performance aspiration, program soundness, staff participation in planning, role conflict, allocation of tactical authority, staff's transfer frequency, supervision, communication, leadership orientation (relation and task), magnitude of educational activities, severity of punishment, staff background in terms of family size, income, parent's occupation, elite representation, personal quality, extension work experience and training, professional commitment, motivation, job satisfaction, absenteeism, conflict and resource need fulfilment of both the clients and the institution. The Training and Visit Model is manifested with the highest magnitudes of technological diversity, professionalisation, intensity and magnitudes of client participation and dispersion of control. The Advisory Service Model is characterised by a large span of supervision, more staff with rural and agricultural backgrounds, anxiety-stress and clients input need fulfilment, The Integrated Extension Model is characterised by more universal contact, high technological adaptability and formalisation, more salary and incentives, co-ordination, supervisors mobility, active client participation, more older staff and higher expense per client family. The overall performance seemed to be the highest under the Integrated Extension Model, while Training and Visit and Advisory Service Models performed alike. Higher magnitudes of those properties may have resulted the highest magnitude of overall performance under the Integrated Extension Models of Sugarcane Extension Service. The performances under Training and Visit and the Advisory Service Models were alike because they failed to create significant difference in most of the organisational properties. Therefore the Training and Visit Model need careful redesigning to affect desirable changes in the organisational properties of the extension services.

References

BENOR, D. and HARRISON, J. Q. (1977). Agricultural extension: The training and visit system. Washington: The World Bank.

CHILD, J. (1977). Organisation: A guide to problems and practice. London : Harper and Row Publishers.

DEWAR, T. and HAGE, J. (1978). Size, technology, complexity and structural differentiation: toward a theoretical synthesis. Administrative Science Quarterly. 23(1) 111-136.

HASSANULLAH, M.1986. "Models of Extension Work". Bangladesh Journal of Extension Education. 1 (1): 55-64, Jan.

HASSANULLAH, M., (1987). Agricultural extension in the coming years: On the question of models and approaches. Bangladesh Journal of Extension Education. 2 (conf): 47-68.

HICKSON, D. J. and PUGH, D.S. (1969). Operations, technology and organisational structure: An empirical reappraisal". Administrative Science Quarterly. 14(3): 378-397.

KHANDWALLA, Pradip N. (1977). The design of organizations. New York: Harcourt Brace Jovanovich, Inc.

PUGH, D.S. et.al. (1969). The context of organisational structure". Administrative Science Quarterly. 14(1). 91-114.

SHETTY, Y.K. and CARLIST, H. M. (1975). A contingency model of organisational design. In Emerging concepts in management. M. S. Wortman, Jr.. and F. Luthans. ed. New York: Macmillan Publishing Co., Inc.

WOODWARD, J. (1965) . Industrial organizations: Theory and practices. London: Oxford University Press.

Appendix-A **Reproducibility, Consistency.and Reliability of Measuring Scales.**

Organizational Properties	Reproducibility: Odd/Even Mean Diff. (F-Values)	Consistency: Range of r between Item and Scale Values	Reliability Co-efficient (Cron back Alpha)
Client Orientation	0.321 NS	.75 *** to 0.81 ***	0.83
Technology Adaptability	0.000 NS	0.19 * to 0.57 ***	0.94
Technological Diversity	0.171 NS	0.64 *** to 0.78 ***	0.91
Participativeness	0.532 NS	0.67 *** to 0.77 ***	0.83
Coerciveness	0.860 NS	0.55 *** to 0.66 ***	0.55
Performance Aspiration	0.114 NS	0.46 *** to 0.71 ***	0.81
Program Soundness	1.807 NS	0.62 *** to 0.80 ***	0.91
Staff Participation in programming	0.459 NS	0.64 *** to 0.84 ***	0.92
Role Conflict	4.442 *	0.30 *** to 0.58 ***	0.60
Strategic Authority	0.349 NS	0.59 *** to 0.77 ***	0.89
Tactical Authority	0.000 NS	0.42 *** to 0.76 ***	0.87
Formalisation	0.032 NS	0.20 * to 0.59 ***	0.58
Flexibility	0.022 NS	0.44 *** to 0.67 ***	0.77
Coordination	3.764 NS	0.65 *** to 0.73 ***	0.77
Horizontal Communication	0.142 NS	0.51 *** to 0.71 ***	0.52
Supervisory Leadership (Relation Orientation)	0.279 NS	0.56 *** to 0.80 ***	0.81
Quality of Client Participation	0.018 NS	0.76 *** to 0.92 ***	0.95
Supervisory Leadership (Task Orientation)	1.730 NS	0.67 *** to 0.86 ***	0.87
Level of Control	0.017 NS	0.41 *** to 0.79 ***	0.88
Job Satisfaction	0.119 NS	0.52 *** to 0.76 ***	0.89
Anxiety -Stress	0.383 NS	0.55 *** to 0.82 ***	0.89
Intra-organizational Conflict	0.104 NS	0.76 *** to 0.85 ***	0.93

Note : 1: *,**, *** indicate 0.05,0.01 and 0.001 levels of significance respectively
Note: 2 Cronback Alpha Value exceeding 0.50 was considered to be significant.

Agricultural Development and Modes of Professionalization of Extension Work: Some Reflections about the French Case

Bruno Lemery

I wish to thank the Organising Committee of the 10th European Seminar on Extension Education for their favourable reaction to my abstract by allowing me to present my ideas to this assembly.

I shall say that the only ambition of my intervention is to draw your attention to a dimension, in my opinion, usually neglected in the current approaches of agricultural development or extension. This dimension is one of capacity or power in which the agents who are working in this sector constitute themselves as social actors who are relatively autonomous, that is to say, in particular, as a real professional group which has their own references and identity.

What I want to do is establish for this group through a deeper understanding in a certain way, non-exclusively, the apprehension or perception for necessary research in the mastery and implementation of development practices through training until the philosophy attains the working system, the organisation structure and the proper methods to conceive this strategy are utilised.

In order to establish the conceptual framework, I will begin in the following manner. First, I shall strive to clarify the principle reasons for such a method in tackling the development question which seems to me to be indispensable. The approach will have to be specified at this first step. Secondly, I shall try to show you, from fieldwork and in the French context , how the view-point so adopted is susceptible to actually allow for a better understanding of some of the great issues that agricultural development policies confront today. Lastly, I shall point out the declarations of intention and the first trail to be blazed, that is to say the main tracks for a working "programme" to be built and structured while still stressing the participation and involvement which comes out of the process.

Considering the time limit for the communication, I shall be schematic. I hope, however, if not to convince you, at least to introduce "debatable" propositions. Having said that, I will get to the heart of the matter.

Concerns with a Few Epistemological and Sociological Prerequisites.

Concerning the first point of my talk - the preliminary "justification" of the approach I wish here to submit - is essentially at the theoretical level - it belongs to development sociology. What does development mean? At the risk of being arbitrary and without going into long explanations, it is in a deliberately restricted view that I shall place before you. Please consider development in a context marked by the necessity for farmers to face more and more complex and uncertain situations for example and being compelled to make on-farm adjustments to more and more specific and changeable markets, integrate new social demands about the environment by way of local and regional planning concerns, and address the crucial questions of articulation between advances in science and the potential technology. It is from this angle or perspective, the articulation - from a "socio-cognitive" view point therefore that I shall cover with this topic.

At this level then, what are the reasons for constituting social modalities of the technical advisory functions which seems to me to have to grab our attention (admitting, once more, that these functions can be considered without too much abuse as "hard core" development practices, in the meaning here of this term)?

Until now, it is with reference to a "diffusionist paradigm", that the before mentioned articulation has been most often considered. It is the knowledge and skill of extension agents who must take credit for the implementation of "diffusionist paradigm" and to assure the most efficient and simple transmission of innovations from agricultural research (basic or applied) to the producers. The transfer of knowledge is considered the main task of extension for agricultural "progress". Yet, the field of knowledge theory strongly criticises the "diffusionist paradigm" and offers an alternative prospect.

Built on a certain "representational" theory of knowledge, the "diffusionist paradigm" becomes more and more contested (Varela, 1989). From the founding work by G. Bachelard, the paradigm is criticised through his scientific facts "construction". Latour in his recent research states the importance of "science in action" and Kuhn describes scientific historical revolutions which refute the paradigm. Other authors such as Piaget in his learning process study and Varela´s development of "cognitive sciences" again contest the theory. In looking at a field of knowledge that directly concerns us, we find sociological studies which describe "comprehensive" approaches centred on the analysis of ordinary processes governing the definition and attribution by the actors of the meaning of what they do: ethnomethodology or symbolic interactionism (Berger and Luckmann, 1967; Coulon, 1987; Schutz, 1971). There is according to these authors a new way to consider knowledge as formation and circulation.

The paper will address two concise propositions. The first is that there is no knowledge independent of a "self", a self who is not a pure thinking consciousness, but a self who is always an active and socially situated one. From this standpoint, any knowledge is first to be considered as a product of the typical questions that individuals are going to work out by facing problems they have to solve in a given context and from certain peculiar interests.

Consequently, the second proposition is that the main issue of technical change is not the substitution of one's viewpoint. It is built and maintained by the common world of shared meanings which necessarily refer to a social process of relationships, confrontations, and reciprocal settlements. In this way, extension is considered less as a task for establishing "objectives" shared with the evident questions, but more of an aim in which the clientele share in the process of the why and how in the development and agreement of the pertinent questions for extension to deal with in their programs.

If one tries, than, to draw such a conception of what to know through meaningful inferences, it becomes imperative that a reorganisation of our methods of understanding development problems be attained.

In the light of this new conception, what must be at the core of a consistent thinking about the technical conditions and stakes for change is no longer the study of the special "apparatus" that functions as a relay in what one could call a "progress channel". It is in fact the capacity of all those taking part and included in the social system of development to assert themselves and to intervene as actual actors or interlocutors in the games of transaction, negotiation, and conflict which are the constituents in this system.

To use an evocative expression, from the vertical view of technical change - be it from up to bottom, or from bottom to top, as when progress is conceived as a "grassroots" virtue that mobilising against the domination which assumes a pseudo scientific neutrality, an inverted view of diffusionism which does not break with this paradigm - one is led to move on a horizontal reading, centred both on the analysis of the process through which collective, and especially professional, identities are built, it being possible for these identities to inscribe themselves as reflection and proposition centres in the debates and social "experimentation" space that development finally is, and on the analysis of the concrete interaction modalities which are deployed between these centres.

Basically, then, it is with reference to this development horizontal process described by anthropological studies (Bastide, 1971; Olivier de Sardan, 1988), that the issue of social "position" of those who are working in this field seems to me of outstanding importance. It demands, of course, for an investigative effort about the manner in which farmers interfere in these processes for which they are just not targets. A widely initiated effort today through various works concerned with the farmers peculiar knowledge forms involves the collective elaboration modalities of their technical thought, pragmatic system's experience and their involvement in change negotiation games which can serve in understanding the farmer (Darre, Le Guen, and Lemery, 1989). In addition to these studies, it calls for similar investigation with those who are the farmers "partners" at this level. And here, we must note that things are less advanced.

Extensionist have been defined more by what they disseminate rather than what they possibly produce, these ordinary intermediaries or vehicles of information have not been given minimum recognition or social visibility. Regardless of whether they are perceived as spokespersons of scientific truth, dominant ideology or grassroots aspirations, they are always considered of minor importance while facing the real stake of their intervention. And yet, at this time, one wonders more and more and in a very practical way about what are their functions and their skills that must be performed in order to do their jobs. For this reason, there is a certain urgency to understand the modalities.

The Constitutional Modalities of an Advisory Professional Domain in Agriculture: Some Reflections from the French Case.

The concrete form of the approach which needs to capture our attention can be established through fieldwork. In just such a situation, an approach will be presented from empirical research carried out in France. The particular constitutional modalities encountered in the advisory professional domain of the French extension system allows me to account for some of the difficulties to characterise it today. Also, in the second part of the communication, I will illustrate and defend this pertinent view-point. The lack of time does not allow me to go into detail concerning the application of the methodology of the study to explain this phenomenon (please refer to Lemery, 1991), but a brief outline will be presented. Having discussed the historical and institutional context for this study, I shall limit myself to considerations about its existing structure and dynamics, while attempting to point out their results from my study (Lemery, 1991).

From the preceding principle already explained, my view is that knowledge is not so much something which spreads as something which is produced, the outcome of the confrontation between actors characterised by different "interests", with problems to solve which are not a priori the same. From this point of view technology allocation depends on the existence of a debate, the most open possible, between actors possessing an asserted professional identity - this being the basic condition for them to be able to come to, and develop, an argument for their case and thus define the guiding principle. The central theme of my research was to observe this situation from the perspective of the agricultural advisor (these agents being at the heart of the French development system). Quickly formulated, the questions I ask myself were the following: 1) Do agricultural advisers form a "well constituted" profession? Is there an autonomous professional field of technical advisory work in agriculture? and 2) Is it possible to link the constitutional professional modalities and their level, by the development type - more or less "normalising" or "making complex" modalities in which one can observe these situations in their working sector?

To answer these questions, I consequently conducted a qualitative survey with about fifty agents in a simplified manner within three areas:

a) the first within their "culture of reference" perceived by an analysis of the official discourses about their tasks on the one hand, and through an analysis of their socio-professional itineraries and projects, on the other hand.

b) the second within their "working social space" (perceived) through the description and analysis of their professional dialogue networks.

c) the third within their actual "practices and debate space" perceived through their ways of doing and the "professional patterns" of doing as structured around exploration.

It is from these indicators that I tried to build a representation of their professional field "form" - with its tensions and its dynamics - to draw the type (or rather, the types) of "technical intervention design", or the modes of involvement in the relationship with farmers, which proceeded from this original form.

What are the obtained result? Globally, what emerges from the analysis is that the surveyed advisers have great difficulty to constitute themselves as "actors" or even as an ordinary professional group with a minimum coherence (even if simply “defensive").

What is found, in fact, through the empirical study are agents that are divided between ways of doing patterns and working figures weakly linked to each other - indeed quite antagonistic at times which the study discovered through the exploration of their practices and debating space. It is shown by the nostalgia of the agents to the "good old days" when the agent's task with the global farming population involved "animation" rather than the "advisory firm" pattern of today. The "good old days" claim is supported further because the new pattern does not easily succeed to take shape without an intermediate stabilising way, in spite of attempts to form an "applied research" centre. The new ways of doing produces the perpetual temptation to withdraw into only "teaching" tasks.

Secondly, it appears that those agents are within relationship systems which are strongly "centrifugal". The relationships provide limited internal exchanges and on the contrary intense "attraction" from the farmers circles and on the other hand divergent social valorisation strategies with the technical research institutions.

Lastly, one observes that these agents have to manage quite a large heterogeneity of itineraries (and consequently of reference worlds and of professional projects), a more problematic management process. The reason being that the agent faces both a powerful and ambivalent external discourse about what they have to do, why and how. The discourses of today are marked by a rough process of rearrangement.

In all, it is finally a real instability which appears to be the main characteristic of the present advisory professional domain in agriculture.

However, what one especially notes at the end of these analyses, is that one is justified in thinking that there is quite a close link between the so called apparent instability and the trend our observations reveal. In other respects, the agents´ intervention design (split outcome) lead to farmers identifying objectives and an instrumentalisation process (these being reduced to a state of information sources or subject study) rather than to a "view point confrontation" process. It did not occur because of a deliberate intention or act, but for the reason that instability or lack of "autonomous" professional domain vitality lead to the uncontrollable spreading (failure of appropriate discussion places) of proceedings, action schemes and language fragments of uncontextualised proceedings and action schemes deprived of social supports. In this environment, their integration and accommodation was executed through proceedings, action schemes and languages imported from other fields and especially from the legitimacy centres that are the research institutions.

And what appears, is that, from the development agents side "too", the problem of real actors - with their own view-point about who they are, what they have to do, why and with or possibly against who - is confirmed as a main stake to the change and change mastery type which is going to impose itself in agriculture. But, what are, now, the practical consequences we can draw from such observation? These consequences are what I am going to envisage for the reader in my conclusion.

For a New Approach of the Development Agents Domain in the Agriculture Modernisation Process

The main conclusion, that I shall retain from the foregoing discourse, is that the existence of a real "working culture" as it regards to development appears as a relatively crucial issue for the future agricultural sector. This, indeed, depends on many other factors such as the macro economical and political determinants. But, since it is admitted that these factors do not totally apply mechanically and that this future is rather conditioned by the way these structural determinants are going to be interpreted and by the way the different social groups facing one another try to play with them, the development agents "information" task must be considered as a central role.

The problem is then to know how it is going to be applied; rather as a simple transmission model worked out according to a technocratic logic or rather as a real mediation among a plurality of interests.

In the first case, one can assuredly rely on the supposed virtues of "development engineering" established to form the scientific foundations of a profession which would at long last occur because it could accede to an expertise status. But, in the second case, it is quite a different effort that was confronted with those who are concerned with aiding these agents to conceive and clarify what their tasks should be today.

Assuredly, the constitution of a working culture, the reinforcement of development agents collective capacities to think about their role in extension cannot be decreed. But one can consider that they identify, at least, certain postures as actors. Describing these postures will be emphasised to finish up this communication.

The first posture is to promote research in this area. In order that development agents can assert themselves as social actors, it is important that they have at their disposal a "reading" of who they are, of what their social position is, and of what the limits and the possibilities of this position are. There is here a systematic knowledge to be understood about their effort which researchers must undertake.

The second is related to the way their training can be reconsidered to prepare them for this working culture. From this view-point, and at the risk of being accused of a defensive "pro doma", it seems to me that introductory disciplines, at this entry level, of social science should involve the conceptualisation modes and methods - beyond "communication" technologies - which play a significant role. To stimulate the indispensable emergence of self-analysis capacities for these social actors, disciplines attuned to these traditions must not be neglected.

The third, the most important perhaps, is related to the necessity to promote, with regard to the way these agents envision their working system, the organisation modes which do not confine them to the dilemma of the pure and simple identification of the farmers or of the flight toward pure research tasks, because they are the only task valorised. Beyond militant improvisations, and beyond incantations about "firm spirit", there is an urgent need for conceiving participation, collective thinking, valuation and promotion of their careers which allows them to assert themselves as full interlocutors within an agricultural sector that one can less and less restrict to only farmers and to their direct economic partners.

References

BASTIDE, R., (1971). Anthropologie appliquée. Paris: Payot.

BERGER, P. and LUCKMANN, T. (1967). The social construction of reality. New York: Anchor Books.

COULON, A., (1987) L´éthnomethodologie. Paris: Presses Universitaires de France.

DARRE, J., (1984). La production des normes au sein dún reseau professionnel. Sociologie du Travail, N°2. pp. 141-156.

DARRE, J., Le GUEN, R. and LEMERY, B. (1989). Changement technique et structure professionnelle locale en agriculture. Economie Rurale. N°. 192-93, pp 115-122.

KUHN T., (1962). The structure of scientific revolutions. Chicago, Illinois: University of Chicago Press.

LATOUR, B., (1987). Science in action: How to follow scientists and engineers through society. Cambridge, Massachusetts: Harvard University Press.

LEMERY, B., (1991). Lectures sociologiques des activites de conseil technique en agriculture. Essai sur les processus de rationalisation. Sociology Doctoral Dissertation, University Lumière/Lyon 2.

OLIVIER DE SARDAN, J., (1988). Peasant logic and development project logic. Sociologia Ruralis 28,2/3, pp 216-226.

PIAGET, J., (1970). L´ épistemologie genetique. Paris: Presses Universitaires de France.

ROGERS, E. and KINCAID, D. (1980). Communication networks: Toward a new paradigm for research. New York: The Free Press.

SCHUTZ, A. (1971) Collected Papers. The Hague: Martinus Nijhoff Publishers.

VARELA, F., (1989). Connaître: Les sciences cognitives, tendances et perspectives. Paris: Seuil.

The "Reaching Problem" in Extension Education: A Dialogue Approach

Fanny Heymann

In this paper, I want to continue in the direction of my earlier research on the question of why extension education can't reach most people. During my studies I started to analyse this problem. Many people are just not attracted by the programs offered by extension, because it is not solving their problems. So I started to see the question differently and have defined the problem in terms of the inevitable distance between extension workers and some target groups. Importantly, I found, two different kinds of orientations with the potential clients. Analysing the reaching problem with the help of these orientations leads to a promising result. The contours of a possible approach become visible. I first start with the analysis of the central problem. In the second part of this paper I put forward some ideas about the dialogue approach.

The Changing Society and the Role of Extension

Extension belongs to the more recent developed parts of our society. You could even say that it is more or less a product of modern society. It reflects in its concepts and approach the dominant Western conception of humankind and the world. What is meant by the Western world view? A world view in which the individual human being is the centre of everything. In which the rational side of life is to be dominant and able to control and look positively at the future are important characteristics. Modern society wants a flexible individual who adapts himself/herself to a quickly changing environment. He/she is prepared to take an active part in planning for their future. His/her rationality fits into the needs for control.[39] Extension can be seen as a vital instrument for modern society and humankind to keep each other in balance. Information exchange, as extension has specialised in, fulfils a key function for humanity and society. Modern individuals have become dependent on up-to-date information to perform well. This is the case with most parts of their daily life. They have become use to the role of an active information-seeker. It is important to realise that we talk about a more or less "ideal" kind of person. We find this type of well-educated person mostly in middle-class circles. You can say in general that people have become more "mature" through the rapid development of the educational system and all the different institutions which encourage information exchange.

Of course this has had consequences for the profession of an extension worker. For a long time the extension worker was a person who stood close to the farmer, knew his/her life and problems from nearby. This has changed as the extension worker had to work more and more in the context of professional organisations. They became a very professionalised worker with all the forthcoming characteristics. They are judged now more by their knowledge, efficiency in serving as many farmers as possible, and the professional manner in handling information than by their contact with the farmer.

---

[39] About this problem, extension science as a supporting function of modern society and the consequences for the extension offer for certain groups of people, I earlier wrote the article: " Vrouwen uit achterstandsgroepen. Voorlichting over scholing en werk in TvA, 89/3 p.289-300. Also my paper on the 9th ESEE conference in 1989 had this subject. In this paper I mention only the most important ideas which will assist the reader to understand the line of my reasoning.

The User of Extension : The Information-Oriented Client

The development I tried to describe here, can be analysed in different ways, dependent on which side you look at it. For understanding the central problem in this paper I want to focus on what this development means for the communication between the extension worker and his/her clients. What happens is that the extension situation has become much more complicated. The more differentiated the problems of farm people become, the more specialised the extension work will be. Everybody needs different information according to his/her specific farm-situation. This means that extension starts to distinguish many target-groups with varying demands. They have to be served by different specialists. Slowly but surely the relation between the extension worker and clients changes. The specialised information is what they both are interested in because this is vital for their existence. They can communicate often without actually meeting. The computer becomes a necessary instrument. Farmers cannot function without exact data about their enterprises. All the time there is the need for new and more extension programs. I call this client: **information-oriented**. Later in this paper, I shall work out in more detail the essential characteristics of this orientation. On one side the extension work is expanding. The information-oriented farmers need more and more new information. They cannot function anymore without information about the market. There is a lack of professionals to assist them and too much work with already enough people attracted to most extension programs. At the same time you see the forthcoming of individuals or groups of people, who do not ask for extension and whom you never meet at extension meetings. Who are they and why don't they benefit from extension?

The Non-Users of Extension: The Relation-Oriented Client

In this paragraph, I want to make clear what is the matter with the so -called "non users"[40]. Not everybody is socialised according to the dominant Western world-view. You could even say, on the contrary, many people have deviating values and norms. Especially since the Western countries are more or less forced to accept different cultures in their own societies. Still many cultures and subcultures in our own country socialise in different ways. This makes it difficult to talk about the deviating group. Still these groups have things in common, especially when we restrict ourselves to farm-people. They do not use the extension services for instance. You can say very simply: they are not attracted to a great deal of the extension offers. The reason is quite simple: these groups don't feel that the offer is meant for them, that they could benefit from extension. They do not recognise the extension offer as something for them. It seems to them that this extension has no relation to their problems. This is very important to understand, as often one is inclined to talk about these people in terms of:

---

[40] In the last years much has been written from different perspectives on the problem that society seems to get more and more divided into two parts: the users of goods and services and the non-users. In the context of this paper I have to limit myself to extension and within this area I just concentrate on the relevance of certain facts in relation to extension methods.

"they just do not come and are not interested". Nothing less is true. You can even go as far as to say that everybody has needs, in this case needs for information. But the case is here that there is a gap between the world of these potential clients and the advanced information of the extension worker. What has happened is that they do not understand each others language. The problem lies on both sides. The extension worker has no idea what the information needs are of the non-asker. At the same time the tragedy is that the potential client doesn't know that extension could be of great use for them. This client is not able to look yet for information, they first needs other things. They need help to become aware of their situation. The potential client needs to understand that their life situation contains problems, which can be solved. They have not yet started to formulate questions about their situation, so they are far away from an extension offer that fits his or her articulated information needs. This kind of potential client, I call: **relation-oriented**. This client needs a different kind of contact with the extension worker.

Some Concluding Remarks

In the preceding paragraphs I talked about two types of clients. This is of course a very extreme statement. It is very important to understand that in fact all of us are in some respect information-oriented and in other respects relation-oriented. For instance, I myself am in many respects an information-oriented person, but regarding the area of technics I am a typical relation-oriented person. You could say that despite everything, everybody has areas of interest which are not yet "ripe" for information. Some people have very few of such areas, others have many. As I try to clarify the problem of the people whom extension doesn't reach well, I refer mostly to the last category. People who have so many areas which are not yet open to extension that you can start talking about them as the relation-oriented type of client.

Language as a Key Concept

I have said that the problem of not-reaching is a two-sided process. I want to make this point of view more clear by bringing the concept of language into the discussion.[41] Both extension workers and clients have developed their outlook involving reality during their socialisation process. There you can find one of the roots of the problem. As the extension worker is a well educated person, his/her language is, as Bernstein calls it "of the elaborate type", which means they are able to express themselves in a quite abstract and analytical type of language. Their way of thinking and outlook on life are mostly of the middle-class type, they behave according to the dominant values of society. Their language bears the signs of the information-oriented type of person. The important consequence of this fact is that the language is very much understandable by clients of the information-oriented type. They easily get into contact with each other. They are on the same wavelength. This is clear from the first minute they meet or from the first message that is sent from the extension worker. The relation-oriented client is socialised in a different way, has much less education and uses in their language the so called "restricted language". The language is descriptive and concrete. Their thinking and performance shows a difference to the information-oriented type. The world of the extension worker and the relation-oriented client is so different, that they do not understand each other when they meet. A problem arises when the relation-oriented client is confronted with an extension offer which bears all the minutiae of the elaborate language, as is the case of the official language of the information-oriented professionals. The client doesn't react in a positive way to the extension offer, because they really do not feel attracted to it. To feel attracted, you have to recognise your own orientation.[42] It should be clear that language refers to much more than just the content of what people say. It should be seen as the whole of one's thinking and performing. In every interaction between people, the whole cultural and historical background is expressed.

---

[41] In the following I make use of the ideas of a group of Russian developmental psychologists. The most outstanding is Lev Vygotsky (died in 1934). He is seen as the founder of the so-called "Culture-historical learning-theory". Typical for this view is their conclusion that higher cognitive processes develop in the social interaction through cultural instruments. Two basic processes find place during a persons development: the interiorisation is the process whereby the individual takes the cultural material inside. This means the material activities become internal processes. At the same time there is a movement outwards from inside the individual. He does something with what he now possesses: he changes things and brings them outside. Especially much emphasis lies on the language interaction. In language lies the knowledge about reality.

The Problem Redefined

Every trained extension worker starts the preparation process of extension with a target group analysis. After having done this, they start preparing the extension program. From what I described so far it should be clear that this start of extension when it concerns the relation-oriented group of clients, does not have the right material to prepare a successful program. A target-group analysis works when people are able to formulate needs in terms of information questions. But these people are not use to look in this way at their own situation. It implies the ability to move to abstract thought from the problems you meet in your concrete situation and at the same time being able to translate needs of information gaps. It is here you can see the two worlds of potential clients and extension worker diverge. Another factor is the lack of time. Many extension workers have not the time to actually ask people what they want. Often they are able to make programs without a thorough analysis with the people concerned. Mostly this is not a problem because many clients are of the information-oriented type, which the extension worker knows from their own experience. The concept "ability of empathy" which in the training of extension workers is seen as a very important instrument does not work with people whose world has no connection whatsoever with your own. This means that you can conclude that the problem of reaching people can be formulated in terms of information-oriented versus relation-oriented.

When you take into consideration that people differ in terms of information-oriented or relation-oriented, the first step to be taken is to analyse with what type of client you are dealing with. They differ in the following respects:

---

[42] I found different studies about the important role of language and problems in the helping professions, and the distance through language, connected to social class. Here I just want to mention some very interesting ones.
B.Bernstein, a very outstanding scientist on sociolinguistic codes, Class, Codes and Control, London 1975.
Wulff, Erich, Psychiatrie und Klassengesellschaft, Fischer, Frankfurt a.m. 1977.
Malmgren,Gun. Min Framtid, Symposion Bokforlag, Stockholm/Lund 1985.

Information-Oriented

- cognitive, rational used to analyse and verbalise through abstract thinking, apart from the concrete situation
- can adapt to many situations, flexible
- active,
- quite high in self-esteem, problems are to be solved
- directed on future, also long term planning of their life
- believe they can control their life
- use to operate as an individual
- has articulated information needs
- is open to information
- has a frame of reference to absorb new information
- has informative questions

Relation-Oriented

- emotional, not use to verbalising and bound to the concrete situation
- dependent on human relations, needs safety and encouragement.
- traditional
- not used to different situations, not flexible
- passive
- low in self esteem, lacks trust, becomes passive with problems
- directed on negative experiences in the past, no idea about future planning
- reality is fixed, you cannot change that
- feels lost to operate as an independent individual
- has no articulated information needs
- is not open to information
- has not the frame of reference to absorb new information
- has no informative questions

A first analysis gives the ideas about a possible approach for the relation-oriented type of client. The starting position is then to realise that an approach should start from the following:

1. The relation-oriented client has just as well as anybody else problems, but he or she has not been able to see yet the link between them and extension.
2. The problem of reaching people is a two-sided one: the starting-point lies in the interaction between extension worker and client.
3. The extension worker should not expect that they speak the same language as the client.
4. This has at least one important consequence: the extension worker cannot expect to use the same tools/instruments with all clients.
5. Most important is the first contact: here the client feels if their norms and values are in or not. You could say: the relational needs have to be fulfilled before the informational needs can come out.
6. The methods used in extension should give ample free space to let the client develop extension questions.

Some First Remarks about a Dialogue Approach.

Some basic lines of the dialogue approach have become clear already, although different parts have to be worked out further. This is going to happen in the nearest future. Basic is the principle: relation goes before information. This means that the very start of the extension process with relation-oriented client has to be exemplary for the rest of the program. This start has to be part of the program. In this so called pre-phase of extension the goal should be to help the client to arrive at formulating the information questions. In other words: through dialogue bringing people from a passive view on their problems to an active one with concrete questions. In the following I shall work out some ideas a little more.

a) needs of people

In earlier research I came to the conclusion that needs of people are not as static entities. Needs can seem to be absent, but as soon circumstances change, the same people have needs and a wish to satisfy them. It is very important though, not to judge too quickly about what people want or do not want. I learned that it is possible to help people to articulate their needs. Also I found out that this articulation process only takes place under certain conditions. An important one is that there is the right mixture between challenge, experimentation and freedom at one side and enough safety through structure. In the argument in this paper these statements are important, as this means that people who are not reacting on an extension offer could be stimulated under certain conditions to react differently. This means that the extension worker has to realise that extension has to start sometimes with helping people to see a connection between their unarticulated needs, you can say their problems in daily life, and the possibilities to do something about these things. What people need is to work on the emotional barriers, the anxiety that prevents them to take an active part in getting answers for their not yet outspoken questions. Instead they stay where they are, feeling stupid, inadequate, not able to believe that there is an answer also to their problems. For extension this means helping to translate daily life into questions, help people to find the right words for their feelings.

b) the two-sided process

We all know the idea of two-sidedness and at the same time its so difficult as a professional to bring this into practice. The situation is very unequal from the beginning. As a professional you are seen as the person who knows what is best. How can you make clear to the client that it is not just another trick you play, a kind of manipulation. In this case it is crucial to get to trust each other from the beginning. This is very difficult as you belong to different worlds. Still the client is the only one who can show the extension worker their way of life, their world. Without this information the extension worker can never overcome the gap that is between them. At the same time it is important for the clientele to get to understand and feel that this extension worker really has something to offer to them. Only by crossing the bridge, by both showing the necessary information to each other they are able to create the conditions for extension.. Both have the key information for the other. In this way both parties are dependent on each other, from the very beginning.

c) the importance of language

Earlier I mentioned the crucial place that language takes in this process. Verbalising is the entrance to our society. At the same time it was shown before that the way you are socialised defines the way you handle language. So even if the extension worker wants to communicate with the client, it takes time and much energy to learn to understand each other's language. Client and extension worker use different meanings, have different images etc. Words are full of emotions. This has to be part of the extension. The extension information has to start from the beginning with the way clients see the world and has to contain the language of the client. Information can only come under these condition that the information is recognisable from the beginning by the client. It should start from the perspective of the client. The most simple example is that abstract lectures are useless. But at the same time it is very important to understand that people can have problems with verbalising, but that this does not mean they are stupid. People want information, but are not use to seeing information as something apart from the concrete situation. They need to see the connection to their daily life.

d) changing of the tools/instruments of the extension worker

The most important tool of the extension worker is information. They are trained in all aspects to perform well and be able to persuade audiences about the cognitive aspects of their information. Likewise they are able to lead group discussions. But what they are not so much trained for is to combine the process of informing people with supporting them at the same time. I am convinced by now through my studies that the success of extension has for a small part to do with the amount of cognitive information, but even more important is the emotional part of language. Emotional support needs much attention. Earlier in this paper I mentioned the fact that safety of the situation is a very important condition for change. Information can provoke feelings of unsafety, anxiety and other emotional reactions. These emotions can be more important for the client than the cognitive information. Moreover another kind of support can be of great importance: the client should get the feeling that they are valued as a person, feeling that somebody finds them worthwhile. The client lacks often this positive valuation. They are not used to getting positive support as many encounters went not so well in the past. They have limited feeling of self trust. And another kind of support is needed: instrumental support. By this I refer to practical help to a client. This can be by going together with the client to other professionals, helping the client with a loan for instance, helping with discussions with authorities or writing a letter, which the client finds difficult.

e) realistic goals: small steps

The consequence of what I am stating above is that the extension worker has to develop a different attitude towards information exchange. Information, which is combined with support, presupposes a certain outlook on the extension result. Goals are not so much directed at the long-term planning by people; knowledge should be useful at the practical level of what people can do now and in the near future. Extension goals have to be adapted to the real life of the clients. The goal has to do with letting people experiment with what they need and want in the near future. Questions are more important than answers.

f) working-methods/techniques

Also, the working-methods or techniques have to be adapted for using in a dialogue approach. Many people are not used to the traditional technique of lectures. Listening for a long time is something that has to be learned. Moreover most lectures are very abstract and presuppose analytic thinking. The same can be said about discussions. You have to be able to put your (logical) arguments in words, otherwise it is impossible to share or understand each other. This is even the case with all groups where people sit together and share emotions and feelings. It is something that has to be learned - to talk about your feelings. You need words to put something into words! This means that extension workers have to be trained to use different techniques. Techniques which not only stimulate logical thinking and verbalising, but techniques which help people to start experimenting, to appeal to their fantasy. People have to get stimulated to look in a different way at their situation. There is a lot of material from the field of creativity for us to use.

Farmers' Study Groups in the Netherlands

Jet Proost

The Agricultural Knowledge and Information System in the Netherlands has always been characterised by an openness of information flow between the actors in the system. It is said that due to these open flows of information and strong linkages between research, extension, education and farmers the Dutch agriculture has become so successful as it is today.

Within the Dutch AKIS a structure of farmers' study groups has developed, first at the initiative of governmental extension workers, but now taken over by farmers. Farmers can be seen as competitors in one way, striving for better production results and good prices, but they can also be a valuable source of information for each other. By organising themselves in groups, farmers have become an interesting communication partner for extension and research, but also with industry and trade. On a national level the federation of study groups is active in defending farmers' interests in research programmes and agricultural policies.

The Dutch AKIS is also characterised by a substantial supply of information. With an increasing educational level of farmers their need for more complex information is growing. They mobilise themselves to continue and stimulate extension and research according to their needs (Elégoët and Van Gils, 1989, p.108). And recent developments in the Dutch AKIS puts new demands on the services of agricultural extension organisations.

These developments in relation to organisation and management of extension services is the subject of my research at the department, I am especially interested in the reactions and modifications of farmers and extensionists towards these developments.

The main focus of this paper lies in the role and functioning of farmers' study groups. The influence of the traditional farmers' organisations are diminishing and technical oriented associations like study groups will become more important. I believe that for the development of commercial based agricultural extension services the study groups will play an essential part.

First of all, a short overview will be presented of the actual situation in the Netherlands regarding extension. Then some ideas are elaborated about the role of study groups in developing quality systems for extension. The functioning of the groups are explained with an example from the horticulture sector and in the end some conclusions are drawn towards agricultural extension services.

Recent Changes

For more than a century agricultural extension in the Netherlands has been funded by public means, through the government. In 1993 farmers will start to pay for the services received, a process that will be completed in 2002, when government funding will be brought back to 50 percent level.

This privatised extension service will be the largest extension service in the Netherlands and provides mainly independent farm management advice that takes several aspects of the enterprise into consideration. Besides distinct farm management advice, a more educational type of agricultural extension is provided through coaching of study groups and the organisation of excursions. Other sources for advice to a Dutch farmer are salespersons from trade and industry, who perform a type of advisory service in addition to sales activities, and mainly concentrate on specific technical aspects of farming, like the use of compound feed or pesticides (Bos, Proost and Kuiper, 1991, p.2). For about 10 years the private advisory services have also been active, mainly in the horticultural and fruit sector. The more social-economic type of extension is provided by the farmers' unions. Recently these unions are also created foundations for agricultural extension.

Quality Systems for Extension

Paying for extension is a rather new phenomenon in Dutch agriculture. There are of course salespeople who give advice in combination with the selling of products and the private extension advisors, but on a whole the Dutch farmer is use to extension free of charge. However, if they will have to pay for it, then they will ask for quality and they will use competition between advisory services to get the best product they can buy. What consequences will this have for the suppliers of advisory services ?

It creates a need for the identification of information products and the calculation of costs and prices. Establishing farm visits on the day's working schedule is not enough any more, it'll need specification.

Offering quality, maintaining a satisfied customer, means regular contacts with clients to find out what they expect, what they need. This client orientation will probably mean a reorientation of the extension organisation itself, because in future the client will determine how successful the extension activities are.

Requirements for quality will have to be set up in close collaboration with this client. Farmers' groups could play a very important role in this, because they are well organised groups of clients. Moreover nowadays a growing number of farmers become members of a study group and the influence of national associations is increasing. Recent research showed that contacts with other farmers considered to be a colleague (colleague farmer) are very important. In the top ten of most important sources of information are e.g. the horticultural contacts byway of the study groups which come in the first places; government extension service is rated at sixth or seventh.

In the development of extension programs the diversification in needs and requirements between farmers has to be taken into account. There exists quite a lot of variation in the ways farmers run their enterprises. Not long ago government extension messages were directed to a certain so called successful farm management type. Agricultural practice showed however that various strategies can lead to successful farming. The private extension advisors have recognised this and show flexibility in the information programs they offer to the client. Information should be many-sided, not only technical but also economical, not only oriented for the short term but also for the long term decisions a farmer has to make. Ongoing research on styles of farming has shown that farmers follow different strategies to run their farm. In this research about styles of farming, it is related to the opinions of farmers about production aspects and the way a farmer should operate (Roep et. al., 1991, p. 2-3).

If segmentation of target categories for extension purposes takes place according to these styles, it can offer us a very interesting clue to find out what information is needed, how it is used, from which sources etc. It possibly presents another view than labelling farmers according to crop, variety, farm size, type of greenhouse or stable, etc. as we are used to do. The researchers on styles of farming take these variables as a result of a certain farming strategy, in the decision making of a farmer. Growers for instance can make highly divergent decisions, but which are to their point of view rational in every aspect (Spaan, 1991).

This view of farmers as a group of clients means a reorientation; seeing farmers as independent entrepreneurs, with several strategies and specific needs for information. This is very uncomfortable for politicians and researchers, because they are more familiar in establishing a path and make everyone follow. Very uncomfortable indeed in a time when in the Netherlands agricultural policies put an end to independent growth of production and advocate a sustainable agriculture through a restricted use of natural resources and the environment.

Having insight into the differentiation of farmers' strategies seems essential in the development of a suitable supply of information programs. If commercialised advisory services have to be successful, then it is important that demand and supply are in balance. The existence and growth of the study groups shows us that at the demand side producers take the organisation of the supply more and more in their own hands (Elégoët andVan Gils, 1989, p. 117). Producers are not only receivers of information; they also generate information.

Within study groups knowledge is generated through the exchange of growers-experiences (Leeuwis and Arkesteyn, 1991, p.2). From ongoing research at our department on the development of appropriate software packages, to support farm decision making, it is stated that understanding the social nature of study group activities is important to get better grip on the communication processes between farmers (Leeuwis and Arkesteyn, 1991, p.2).

To my point of view this is also valid for the identification of agricultural extension programs. From the communication process in study clubs it may become more clear what type of information programs are needed, and how demand and supply can be kept in balance through a dialogue between client and advisor. In the following a description is given on the functioning of study groups with special emphasis on the horticulture sector.

Study Groups

Study groups are groups of up to 6-50 farmers, who have their enterprises in the same location and grow the same crop or keep the same type of animals. They can be found in all sectors of Dutch agriculture, but are developed and organised best in horticulture for various reasons. Farmers come together to share information on production results, to compare achievements of their enterprises and situate themselves in comparison to colleagues.

Although production processes at farm level may seem industrial, farmers agree that individual skills and craftsmanship are important elements for success or failure (Leeuwis and Arkesteyn, 1991, p.3). A lot of decisions have to be taken throughout the production process. By comparing ones own results with those of colleague farmers in more or less the same situation, improvements can be made and new techniques or practices can be found. By comparing, the growers are constantly trying to explain and justify the differences they encounter (Leeuwis and Arkesteyn, 1991, p.9). Attending a study group enables farmers to become up-to-date, to hear new insights at an early stage and to check their ideas with those of other farmers. Especially in horticulture, a lot of capital is invested in the enterprise and therefore growers want to have recent and reliable information.

Farmers are well aware of the rapid changes in agriculture. If they want to stay in business, they'll have to keep up with the latest technologies and adapt their strategies accordingly. They are constantly looking for relevant information and to make use of new opportunities. All strive for optimisation of the performance, according to their own standards.

Organisation

The idea of working in groups originated in the fifties from the governmental extension service, and started with a broad scope. In the sixties Dutch agriculture was characterised by intensification and enlargement, specialisation in one type of animal, or one crop; extensionists brought the same information message, mainiy technical, to several farmers individually. Groups were formed for reasons of efficiency, but at same time because of a growing interest in farm management and the groups offered an opportunity for an exchange of information between farmers. In former days extensionists fulfilled the task of secretary of the study groups, nowadays all responsibilities are with the members of these groups.

In 1972, the Federation of Dutch Horticulture Study Groups (NTS) was founded. This federation is a decentralised organisation, which means that growers are not a direct member of the central organisation, but member of their local association. These local associations hold membership for the central organisation. The objective of the federation of study groups is to promote better farm results for its members through the co-ordination, organisation, support and stimulation of study group activities (Leeuwis and Arkesteyn, 1991, p.3).

The NTS has about 9000 members (June 1991), of which 3000 are settled in the western part of the Netherlands, called Westland, the main area for horticulture. At the national level the NTS employs 9 persons to run the secretariat. At the regional level about 18 people are employed, to start up new groups, coach existing groups, train the group leaders and to establish external contacts. Finance is coming from the contribution of individual farmers which in some cases can be collected e.g. through an auction levy. As a non-profit organisation the NTS has to work with limited resources. As much as possible good use is made of existing facilities, like the office building and information services of the auction and extension services. 60% of the budget of the NTS (1,3 million guilders (1991) per year) is paid by farmers themselves, one quarter is paid through the auctions and the rest is paid through contributions of banks, trade and industry and farmers' unions. The study groups are organised crop wise and split up in 3 sections:

1. horticulture: vegetables from the field (11)
2. horticulture: vegetables from greenhouses (15)
3. flowers and plants (34)

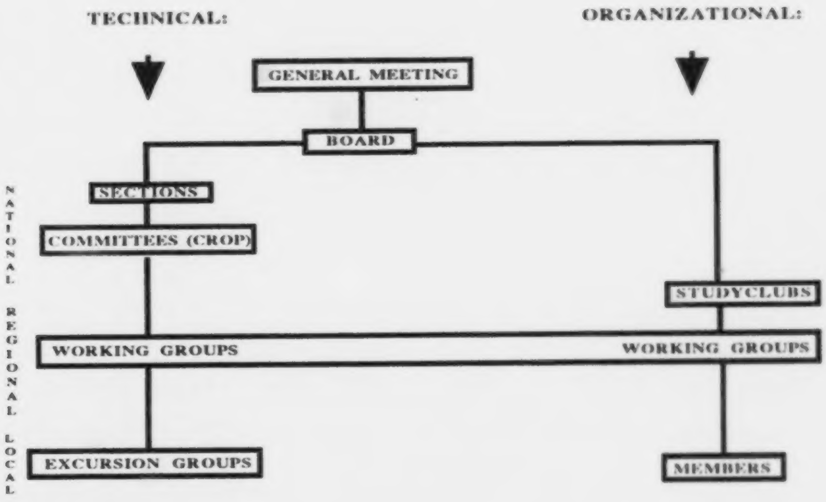
Within each section there are national committees for a specific crop, e.g. tomatoes, peppers, cauliflower, lily; the above mentioned numbers indicate the total number of committees in each section. Besides these crop-oriented committees 12 "general" committees exist, working on matters like energy costs, environmental issues, labour. The national committees consist of representatives from the regional level. A committee consists of about 10 farmers, one researcher and one extensionist. The committee transfers questions from the producers to research and tries to get these integrated in the research activities e.g. at the experimental station. If the research station cannot take the proposal in the programme, other possibilities may be looked for in order to obtain finance.

These committees are also very active in the lobby circuit to get the proposals executed. Likewise they keep in contact with producers of seed and plant material, auctions and of course the study groups, and may invite people to inform them during their meetings. Within the organisation the committees are important to transfer information from the farmers to higher levels in the organisation and the other way around. This two-way flow of information is essential for the organisation.

The organisation structure (see table N.T.S.) is rather complicated and recently the Board of the NTS started discussions to develop a more simplified structure which will enable a better two-way flow of information within the federation. The excursion groups are at the bottom level of the organisation. Between the level of the committees and the excursion groups, working groups exist which co-ordinate the activities of several excursion groups. Members of working groups are elected from the excursion groups and a working group represents one crop in one location. From these working groups members are elected for the committees as mentioned above. These working groups are united in several regional study clubs (150-1750 members), and discuss policy matters and general matters of the federation. This function is getting more important as the federation is defending the interests of the sector and operates as a representative of its members towards governmental decision makers.

N.T.S.

(Dutch Federation of Horticulture Studygroups)



ACTIVITIES

I. Enterprise Comparisons:

This is one of the main activities of the study groups. Groups of about 6-8 farmers visit each other's trade, observe and discuss the state of the crop and particularities encountered. All members of the group have the same crop and start to plant at the same moment of the year; this is vegetables for greenhouses. At the beginning of a new crop the group may meet 2 times week, in an afternoon or evening. All members register information on various production aspects, like consumption of gas, labour time, temperature, light and the production output. In the last decade extension services and other institutions have stressed the importance of registration (record keeping) as a means to get more of a grip on the enterprise (Leeuwis and Arkesteyn, 1991, p.10). And the results of registration also serve as a source of information to researchers and extensionists. Registration takes place in a uniform way and the comparison is done through the main computer of the auction to which all members are connected. By means of the auction computer network information is returned to the members of the study groups and this makes it possible to compare the performance of one's enterprise with the results of others.

II. Excursions:

The participating groups are larger (up to 50 people) and they meet on an average of 2 times a month; excursions are organised by the working groups. Most of the time, a resource person is invited, from e.g. research or extension. The program is announced in the agricultural newspaper and magazines. Members from outside the region may participate in these excursions whenever the topic is of interest to them. In horticulture, vegetable growing in open field, the excursions are more popular than the small groups who meet frequently for comparison of results, mainly for reason that the enterprises are not one crop-oriented. The excursions are mostly guided by an extensionist and take place at one or two enterprises in the same location. Sometimes a visit to the experimental station or an agricultural exhibition may be on the program.

III. Meetings:

Groups of 50 to 100 farmers meet once a month at the auction, in one of the agricultural schools or at the experimental station. Depending on the topic of the meeting participants may be in the same crop, as was the case with the smaller groups. Often a speaker from research is invited to expose some new ideas about technical matters, but also issues from the actuality may be discussed with representatives of the government. This is a very effective way for researchers and regional policy makers to reach an audience of many farmers and exchange points of view. It is stated that these "outsiders" are confronted with open discussions, where feelings are not being hidden. In the flower and plant group the more technical oriented meetings tend to be more superficial than e.g. vegetables from greenhouses like tomatoes. There is more diversification in these crops and therefore it is difficult to choose a topic that is of interest to everyone In certain periods of the year a farmer may spend one evening or afternoon a week in study group activities. It is estimated that in winter each evening 300 to 400 members of the NTS meet somewhere in the country (Elégoët and van Gils, 1989, p.121).

IV. Publications:

From the federation almost weekly articles are published in the agricultural magazines. Newsletters are produced and meetings on regional or national level are reported back to the groups. Through the publications in magazines members are able to follow discussions and public statements at the level of the Board.

Composition

The composition of study groups takes place based on the type of enterprise and the motivation of the persons involved (how intensive do they want to go into comparison of results); groups change every one or two years (groups for flowers and plants may stay together for a longer period). The main objective of the groups is to share knowledge and information and according to farmers who meet frequently the climate in the group may become too cosy after some time and they risk talking football instead of numbers. Another reason is that the change of the composition of the groups may offer new information.

Group leaders fulfil their job on a voluntary basis and are not compensated. They chair a group for a maximum of 4 years, in order to offer all members an opportunity to take this responsibility and, if they want to, be elected for committees or working groups within the federation. There is quite a discussion about the composition of study groups. The point of view of the NTS is that the more advanced farmers shouldn't be separated from the others. For instance in tomato growing it is in everybody's interest that the best production results possible in terms of quality be achieved. The selling of some vegetables at the auction takes place in blocks of one product of equal quality, coming from several enterprises. In this system every

164

grower benefits when the quality is good, and they suffer if someone is offering lower quality. Bringing advanced and less advanced growers together in one study group implies a risk that the first bring more to the sessions than they get out of it. Therefore the Board of the federation recently decided that some groups of "top-growers" will be allowed, because in the end the others will benefit from their new insights.

Within an excursion group members may have different interests. From ongoing research for the development of software record keeping packages in horticulture it appeared that growers have different ideas on which aspects are important to compare and discuss. Some take more interest in medium and long term management issues, others prefer the day-to-day crop issues (Leeuwis and Arkesteyn, 1991, p.7). The first group "tend to compare overall results with own or others Fowers' results in previous years, in a rather context-independent manner", the other group however is "more interested in making regular comparisons with enterprises that they are highly familiar with, usually those that are part of their excursion-group" (Leeuwis and Arkesteyn, 1991, p.7).

Farmers follow different strategies and are not all interested in applying the latest techniques. Researchers and policy makers are likely to think that those farmers who follow the newest technologies as quick as possible and as complete as possible are the most advanced (Spaan, 1991). Recent research on farm management in the horticulture sector showed that growers who are equally successful have different strategies. They do not share one point of view when it comes to the implementation of progress through technology; their ideas about technological development and its applicability for their trade appeared to be strongly interwoven with farmers' experiences, the situation of the enterprise and their interpretation of what is going on at other farms they are familiar with (Spaan, 1991, Van Aaken et. al. 1990 p.81) More research has to been done to find out the consequences, more specifically, for the need of information from extension services.

A certain homogeneity within study groups is important, through similarity in enterprise, farm management and ideas. If a study group can function as a group of peers, there will be a basis of confidence essential to a open and reliable exchange of information (Heymann, 1986, p. 191). In the subsector of flowers and plants it is difficult to compose homogeneous groups. There are many differences in crops and ways of production. For growers of vegetables in greenhouses similarities are easily found on the state of the crop and way of production and there are many of them.

Participation

It was found that 50% of the members of the Federation participate in excursion groups (6-8 persons). Within the horticulture sector study groups, they are best developed amongst the growers of vegetables in greenhouses. More than 90% of the growers participate and compare results with colleagues on a weekly basis. Amongst growers of vegetables in open field 50 to 60% may participate. Actual participation depends on the intensity of the contact, but also on the weather and the level of the prices at that particular moment. As one farmer put it: study clubs are there to support me, and not the other way around!

In the sector of flowers and plants from greenhouses, growers are less eager to participate; they operate on a more individual basis and a little more or new knowledge on a certain production aspect may mean a better or more exclusive product, thus a better price. As soon as the crop is produced in bulk, growers don't win anymore by hiding information from their colleagues. More openness is established and participation in study groups is increasing. One of the slogans of the NTS is that farmers have to co-operate in order to survive, but the question is of this openness really leads to competition without conflict.

Comparison with Other Sectors

Study groups can also be found in other sectors like pig farming, fruit and bulbs. In dairy farming and arable farming there is less tradition to participate in study groups, but their number is increasing. In contrast with the horticulture sector the groups stay together for many years on a more or less permanent basis. In some regions the organisation of the study groups is in the hands of farmer organisations. In the fruit sector for instance, 6-8 sessions a year are organised around a certain topic, by the Dutch organisation of fruit growers; extensionists from DLV may be invited as resource persons or researchers.

In dairy farming there exists some diversification in the appearance and activities of study groups. In the centre of the country for instance one can encounter study groups of up to 7-46 members and even groups of 150 members, co-ordinated by a regional association of dairy farmers. The larger groups attend 4-6 meetings a year, with a speaker and discussion around a certain topic, like veterinary aspects, renovation of stables, mechanical application of manure etc. The group sets the agenda and invites the speakers. 70% of the farmers are members of study groups. Normally, farmers meet in groups up to 100 persons, but active members also organise smaller groups for farm visits to enterprises of group members and compare production results. In horticulture a lot of the sessions of the study groups take place in the greenhouse but in dairy farming members often meet in the house ("around the kitchen table").

In comparison to horticulture, dairy farmers seem reluctant to share information on financial matters, which is also influenced by the cultural background. In some regions there is more openness than in others. In those regions where this openness exists, it was found that farmers call more frequently upon the extension service for it is noted that in dairy farming more information is only available from outsiders like the vet or the supplier of concentrates, while in horticulture e.g. phyto-sanitation services are intertwined with the extension service and the knowledge of colleague growers are a vital source of information. The increasing specialisation and rapid changes have provoked a greater need for information amongst horticulturists. A whole range of products is produced while in animal husbandry or arable farming only a few products are produced. In these sectors so many things around the way of production are well known and don't change as rapidly as in horticulture. In horticulture knowledge straight from the greenhouse is applied in a higher speed than official research institutes can produce.

Horticulture study groups play an important role towards research, while e.g. in pig farming contacts with adaptive research only takes place via extension; there are less direct

BEST COPY AVAILABLE

contacts (Grooters, 1991 p.27). Study groups in animal husbandry mainly operate on regional level and don't lobby on national level like the Federation of horticulture study groups.

Relation Between Study Groups and Extension

Farmers themselves assure the planning and organisation of the study groups, but may be supported by extension workers. The function of the extensionist is twofold:

First, they train leaders of the study groups in communication skills (how to prepare the meeting, how to stimulate debate involve all participants in the process). During the sessions within study groups, especially with starting groups they may be present to supervise and orientate the process. 2-3 times a year "refresher courses" for the farmer-leaders are organised to exchange experiences as a group leader and to improve their performance. The extensionist can be seen in the role of moderator and the objective is to guide the group to an independent status without outside help. Horticulture study groups are trained and coached by their own trainers.

Secondly extensionists may be invited to sessions of study groups as resource persons, bringing in new information from ongoing research. In these session, theory and practice are effectively combined, in a translation of new theoretical insights to a practical situation. In this way extensionists are very well informed about the opinions of farmers and it is also important that this information be passed on to researchers. Unfortunately, extensionists don't see this as one of their major tasks. But changes in attitudes are foreseen for the near future with the creation of the Information and Knowledge Centres.

Extensionists may organise their support of study groups in different ways, again an interesting difference between the horticulture sector and dairy farming. Extensionists work together in teams of about 10 to 12 advisors. In dairy farming, it was found that each member of the team is specialised in 1 or 2 topics and can, if invited to a meeting of the study group, present on that issue. The advantage is that by presenting it several times, the extensionist can improve upon his or her performance, not only content-wise but also the methodologies used. In horticulture teams have developed several modules on actual and technical issues, which are documented and stored in a central place.

Extensionists keep their "own" groups and if asked they present one of the modules. Difficult to say which way is more effective, the fact is that in horticulture more emphasis is put on the group process, while in dairy farming the presentation (content) gets more attention. In horticulture developments are taking place more rapidly; growers are the main source of information and for that reason coaching of study clubs means mainly facilitating there exchange of information. In horticulture extensionists developed a long tradition in this type of assistance to study groups (Grooters,1991 p.28).

Future Developments

Study groups can choose from various sources to get support, they will usually choose the best. For the future, it is expected that there will be an increasing number of study groups and working groups, with the main focus on technical and economical matters. Through the progress in the computerised collection of information, more information will be available for comparison.

For the privatised government extension service it will be very interesting to continue their support to study clubs. However not everyone within the service shares this point of view. It will be difficult to set a price for the services asked for and who is to charge? Moreover extension workers spend more time on individual extension than on group work, that could appear to be more profitable. To my point of view the continuation of services to study clubs is very important and also in their interest, namely:

- farmers ask for it (fits in with client orientation)
- assistance to sessions for the groups offers a possibility for creating a basis of confidence with farmers, the clients
- these meetings can be the basis for other activities, a way to promote the information programs, show that they have expertise in a certain field, and as result of a meeting, farmers will call the extension service for an individual advice
- from study group meetings the extension service receives information on what is going on and can use it as a basis to develop new information products.

From 1992, the privatised extension service will have 3 flows of finance: 1) the Ministry, 2) the sector (through a contribution from Landbouwschap) and 3) the clients. At this moment it is difficult to tell from which source study group activities will be financed, but it would be a big mistake to leave these activities out. The farmer representatives have suggested to use the funds from sector level; continuation of group activities which will facilitate and maintain the openness of information exchange. They are concerned that privatisation of extension services might lead to individualisation within the sector.

It is also very likely that organisations like the federation of study groups will develop their own packages of services. In this way they can operate independently from other organisations. More regional groups will employ their own coaches. The federation will professionalise the organisation in order to improve the internal exchange of information but also to strengthen external linkages e.g. to research and policies.

Last year a few sales companies started to offer assistance to excursion groups, free of charge. This was organised in co-operation with the Federation of Horticulture Study Groups. Instead of an extensionist, an advisor participates during the excursion, who can be consulted by the farmers. It was evaluated positively and will be continued.

In future a more international orientation can be expected, especially in the sector of vegetables from greenhouses. Farmers from Germany and Belgium are already participating in Dutch study clubs. Because of their membership in the Dutch auction, they can take an active part in study clubs.

References

VAN AAKEN, R et.al. (1990). Gewasbescherming in komkommer. Hoe krijg je een groene komkommer?. Wageningen Agricultural University.

BOS, J.T.M., PROOST, M.D.C. and KUIPER, D. (1991). Reorganising the Dutch agricultural extension service: The IKC in focus. In Kuiper and Röling (eds.). The edited proceedings of the European Seminar on Knowledge Management and Information Technology. The Netherlands: Wageningen Agricultural University, Department of Extension Science.

ELÉGOÈT, F. and VAN GILS, L. (1989). Agriculture en Hollande. L'intellieence efficace. Rennes, France.

GROOTERS, W. (1991). Tuinbouw onder elas en varkenshouderij. In Landbouwkundig Tijdschrift, 103(5), 27-29; based on: The role of growers and pig farmers in the progamming of adaptive agricultural research in the Netherlands, an exploration of networks and linkage mechanisms, June 1990, MSc Thesis, Wageningen Agricultural University.

HEYMANN, F.V. (1986). Voorlichting aan eroeDen. In Blokker/De Jong: Landbouwvoorlichting, Muiderberg. The Netherlands.

LEEUWIS, C. and ARKESTEYN, M. (1991). Planned technology development and local initiative: Computer-supported enterprise comparisons among Dutch horticulturists. To be published in *Sociologia Ruralis*, Vol. XXXII 1991.

RAVENSBERGEN, P. (1990). Beschrijving van het Nederlandse Glastuinbouw Kennissysteem. Den Haag and Wageningen.

ROEP, D., VAN DER PLOEG, J.D. and LEEUWIS, C. (1991), Zicht op duurzaamheid en kontinuiteit, Bedrijfsstiilen in de Achterhoek. Wageningen Agricultural University, Department of Rural Sociology.

SPAAN, H. (1991). Styles of farming in the horticulture sector. To be published in the fall of 1991, Wageningen Agriculture University, Department of Rural Sociology.

Technology Transfer in Small Scale Dryland Crop Production: Future Challenges.

T. J. Bembridge

In Southern African agriculture there is a dichotomy. The fairly progressive commercial farming sector of approximately 60 000 farmers enjoys strong institutional support, including technology development and transfer institutions. The small-scale farming sector comprises approximately 1.25 million households. These farmers have been largely neglected in terms of technology development and lack adequate institutional support.

Because dry land agriculture covers over 90% of arable areas in the Homelands, the development and transfer of appropriate dry land crop farming technology to small-scale farmers is of vital importance for future socio-economic development. Due to differences in environment and resources, technology development for commercial farmers is often inappropriate for small-scale farmers.

In order to develop successful strategies for technology transfer it is necessary to have a knowledge of the characteristics of rural farming populations, the diffusion and adoption of technology and contact with sources of farming information. This study focuses on the characteristics of crop farmers, sources of farming information, the diffusion and adoption of important maize growing practices, innovativeness, and a suggested strategy for more effective technology transfer.

Methodology

All the data was obtained by personal interviews and field observations during the 1988/89 season from typical villages (administrative areas) in the Libode and Tsolo areas of Transkei. Average annual summer rainfall in the study area varies between 700 mm and 1000 mm and were therefore not a limiting factor to dry land crop production. Random samples comprising 60 respondents constituted 20 per cent of crop farmers in each village.

In studying innovativeness it is important to differentiate between partial use of a practice, adaptation of the practice and complete implementation as recommended (Larsen and Werner, 1981). In this study a check list of observations and 4 categories to code observed behaviour for each of the five practices was used to measure innovativeness (Larsen, 1980).

Diffusion research has played a central role in technology transfer theory and practice. Although today both research into diffusion processes and the application of research results to technology transfer practice have diminished (Fliegel and van Es, 1984) it is still a core concept of technology transfer. Technology transfer processes do occur and research can lead to the development of new approaches (Röling, 1988,p. 63). Time of adoption was measured by questions probing the time and stages in the adoption process. Although this technique may not provide completely accurate information, the writer is satisfied it gives a good idea of trends.

Knowledge and understanding of the practices studied was evaluated on the basis of several questions relating to each practice. Classification of respondents into adopter categories according to the mean and standard deviation as proposed by Rogers (1983 p. 242) is shown in Table 1.

Table 1: Adopter Categories on the Basis of Maize Production Innovativeness Compared to a Normal Distribution (N=60)

Category	Theoretical for perfect normal distribution %	Actual for maize production innovativeness %
Most innovative	16.0	16.7
Upper middle	34.0	35.0
Lower middle	34.0	21.7
Least innovative	16.0	26.6

The categories in this study are similar to the normal distribution for the most innovative and upper middle categories but show a greater proportion in the least innovative category. This is probably because of a greater proportion of low access resource poor farmers. There were positive and statistically significant correlation's of each practice with the adoption (innovativeness) scale used in this study. There was no significant difference in innovativeness scores between the two villages.

Scales to measure socio-economic status, empathy, fatalism, political understanding and educational aspirations were adopted from the work of several researchers (Lerner, 1964, p.7; Niehoff and Anderson, 1965; Fliegel, 1966; Rogers and Svenning, 1969). In the present study, contact with media and communication channels was measured on the basis of frequency of contact with each information source.

Farmer Characteristics

Research has shown that ineffective technology transfer may arise due to factors such as education, interest, gender, life cycle, information sources, socio-psychological characteristics, socio-economic factors and functional relevance of farming practices among various sectors of small scale farmers (Rogers and Svenning, 1969).

Personal characteristics

Seventy seven per cent of heads of households were male and 22 per cent were widows. Because of the absence of 43 per cent of male heads of households in outside employment, two-thirds of de facto heads of households were women, who were solely responsible for carrying out farming operations.

Table 2: Personal Characteristics of Heads of Households (N = 60)

Gender	No	%
Male head of household	46	76.67
Female de facto head	40	66.66
Widowed	13	21.66
Age group (years)		
<35	4	6.66
35-50	21	35.0
51-60	17	28.33
>60	17	30.0
Education (years schooling)		
O-4	19	31.66
5-6	10	16.66
7-8	24	40.0
>8	7	11.66

The average age of head of household was 53 years. Forty two per cent of heads of households were under 50 years of age, 28 per cent between 50 and 60 years and 30 percent were over 60 years of age (Table 2).

While increased age may not seriously impair managerial ability (Hobbs, Beal and Bohlen, 1964) health issues aside, it can be concluded that up to 30 per cent of farmers may not have the physical capability of satisfactorily carrying out farming operations and may have to depend on younger family members and others for assistance (Table 2). On average 6,6 family members (S.D 2,57) were living at home.

Thirty two percent of heads of households had received 4 or less years of schooling. This suggests that according to the guidelines of Koshy (1977) less than half of the respondents (47%) were considered likely to be responsive to written communication. At the other end of the scale 12 percent of respondents had 8 or more years of schooling (Table 2). Twenty five percent claimed to be able to read English and 32 per cent said they could read English with difficulty. A lesser percentage (5%) could read Afrikaans reasonably well and 17% with some difficulty. On the other hand 73 per cent claimed they could read the Xhosa language and a further 8 per cent could read it to some degree, which suggests that the actual adult illiteracy level in Xhosa (19%) is lower than expected from the study data on educational levels.

Socio-Economic Characteristics

On average 1.30 (S.D. 1.15) persons per family of 6.60 person were in employment. Due to lack of records it was not possible to assess household income. However, data on household expenditure showed average monthly expenditure of R316 (S.D. R161) of which R164 (S.D. R77) or 52 percent of expenditure was on food alone. On the basis of a rural family of 6 persons requirements for household subsistence adjusted for inflation of R440 per month (R5200 per annum), it was concluded that 72 percent were living below the poverty datum line (Potgieter, 1987: p44). However, the position is probably considerably better than this (50-60%) if the value of maize production and other home grown food is added to monthly expenditure.

Socio-Psychological Characteristics

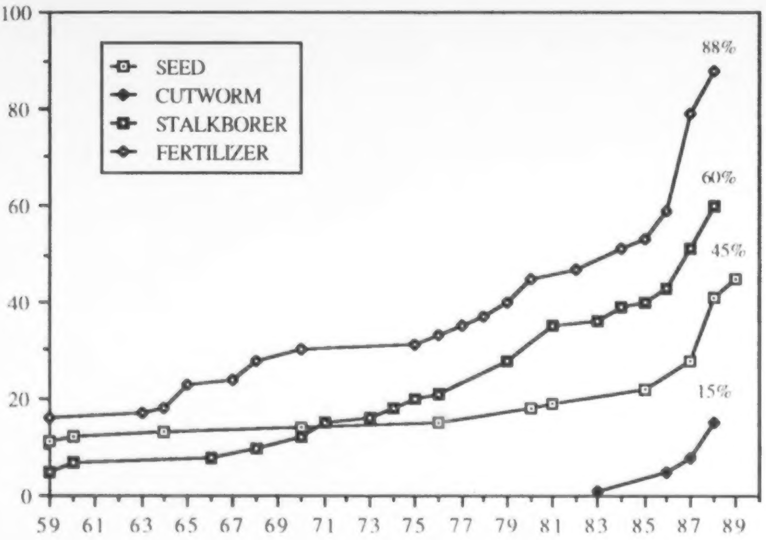
Although empathy, a positive view of the world and educational aspirations for children were factors related to innovativeness (Table 6), these factors were not among the most important explaining innovativeness (Table 7) or crop yield (Table 8) and will therefore not be discussed in detail. Suffice to state that between 30 and 40 per cent of respondents tended to be fatalistic, had a low level of empathy and a low level of political understanding. However, these factors can be regarded as responses to the environment and not necessarily as factors related to resistance to technological change.

When the husband was at home, he invariably was the sole decision maker (40% of cases) on various aspects of crop production. Only in the case of widows (24%) were women the sole decision makers. In other instances, decision making was shared jointly between husbands and wives.

Sources of Information

Information on its own is insufficient to promote agricultural development (Schramm, 1984). It can help intended users to become aware of the practice and even understand alternatives, but without the farmer acquiring the managerial skills and ability to grow crops it will not change the situation materially (Grunig, 1975; Beltran, 1976).

Figure 1: Cumulative Adoption Rates of Maize Growing Practices 1959-1989.



Interpersonal Contacts

Only 40 per cent of farmers had any contact with extension workers. Of these, the majority (78%) were in the upper and middle innovativeness categories in terms of innovativeness (Table 1). On the assumption that at least 6 visits per annum are necessary to successfully guide and train traditional farmers in new farming practices, only 15 per cent had regular contact with extension workers, all of whom were in the most progressive farmer category.

In the absence of extension strategies or policies, extension workers have naturally tended to work with more progressive farmers. This is a natural tendency because progressive farmers find it easy to communicate with extension workers and demand advice from them, and they have the education and resources to try out new innovations (Röling, 1985, p.67). However, there is evidence in this study and from elsewhere that the "progressive farmer" strategy, where information is supposed to "trickle down" to less progressive farmers does not work in traditional societies (Bembridge, 1984). This is simply because as shown in this study (Refer Table 6) and in other studies less progressive farmers differ in terms of education, access to resources, farming ability, life cycle and access to information (Rogers, 1983, p.406-407; Petit, 1976).

Contacts with co-operative officials (38%) and private sector salesmen (33%) were more in the nature of provision of inputs of seed, fertiliser and insecticides and averaged less than twice per year (Fig 1). Fellow farmers were the most important source of individual information, used by 72 per cent of respondents (Fig 1) . More than half consulted friends or relatives. The spread of information from one farmer to another can be regarded as an indirect influence (Wilson and Gallup, 1955 p. 13). Although not investigated in detail, both formal and informal leadership as regards crop farming practices appeared to be weak. There is evidence that by adopting the "progressive farmer" strategy technology messages tend to get distorted (Röling, 1988, p.73).

Forty two per cent of respondents, mainly the more innovative farmers, claimed fellow farmers asked them for advice on crops. Chiefs and Headman appeared to have influenced only a few progressive farmers on the adoption of maize growing practices.

Group Contacts

As regards group contacts, 42 per cent of respondents used farmer's meetings as the most frequent method of group contact (Fig 1). Other groups contacted included church, women's groups, social and tribal authority groups, which in most cases were not concerned with agricultural development. Farmer days were attended by 28 per cent, crop demonstrations by 15% (mainly progressive farmers), while 27 per cent attached agricultural shows and only 15 per cent participated in stock sales (Fig 1). There was no contact with research stations and practically no contact with the local agricultural college. Surprisingly there was virtually no participation in interest groups or farmer discussion groups which have proved to be effective in changing farmer behaviour (Rogers and van den Ban, 1963; Esman and Uphoff, 1984).

Mass Media Contact

The use of radio as a source of information reached the majority of respondents (93%). Film shows reached only 12 per cent of respondents and 17 per cent had television sets. Half of the respondents had access to newspapers and magazines often on an irregular basis. The only farming magazine read by a few progressive farmers was the "Farmers Weekly". There was a dearth of simple leaflets and pamphlets on agricultural matters. Of the mass media, the farming radio programmes created the most interest (68%), followed by magazines and newspapers (35%). Films had little impact (10%).

Discussion

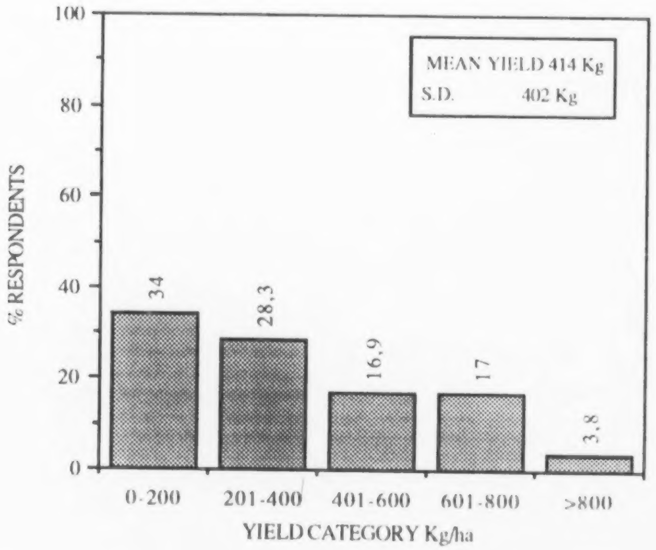
Research has shown the importance of interaction between interpersonal, group and mass media in effective technology transfer programmes (Rogers and Agarwala, 1976; Rogers, 1976; Rogers and Kincaid, 1983; Rogers and Kim, 1985). Clearly, not only was there insufficient contact (Figure 1) but there was also evidence to show that there was insufficient intensity of contact with different information sources. Because of the "progressive farmer" strategy farming information has only effectively reached the more progressive farmers (Table 3).

Adoption and Diffusion of Maize Practices

The original starting point of diffusion of innovations research was on a single innovation, hybrid maize (Ryan and Gross, 1943). This was followed in the 1950's and 1960's by merging innovations into a multi-variable adoption index (Fliegel and van Es, 1983, p.6). This study focuses on practices of improved seed, fertiliser and insecticides which formed the basic package available to farmers through the Department of Agriculture and the Agricultural Development Corporation. Effectiveness of weed control was also studied.

Implicit in diffusion studies is the fact that diffusion takes place over time, the length of which may vary with the type of innovation, the social system, the characteristics of farmers, the effectiveness of extension and communication and availability of farmer support services and inputs. The impact of increased availability of farming inputs and other factors of production over the past 3 to 4 years is reflected in the adoption of four of the practices studied (see Figure 2). The fact that the use of fertiliser, stalk borer and improved seed were the most commonly adopted may be because farmers could see an immediate return on their investment. The acceptance of a new farming practice has to be learned and mastered if it is to be performed well. On this basis adoption rates in Figure 2 give an over-optimistic picture of the true situation.

Figure 2: Distribution of Respondents According to Maize Yield Category (N=60)



Field observations and questions as to **HOW** the five practices were adopted revealed that less than half of the respondents were effectively implementing the practices of improved seed, fertiliser and stalk borer control. Of concern was the problem of poor weed control and lack of cutworm control. The findings were in turn closely related to their understanding of the practices (see Table 3), which suggests that extension workers had not effectively provided the necessary knowledge and skills to more than half of the respondents. The main problem with fertiliser application was that in many cases too little was applied to result in an economic response. Seed was planted at inadequate rates resulting in poor stands. Stalk borer control was often only applied to plants which appeared to be infested.

Table 3: Distribution of Respondents According to Stages in the Adoption Process and Level of Understanding of Maize Growing Practices, 1989 (N=60)

Stage of Adoption	Improved seed %	Fertiliser %	Stalk borer control %	Cutworm control %	Weed control %
Awareness	71.1	93.3	75.0	30.0	-
Interest	56.7	91.7	68.3	20.0	-
Evaluation	53.3	91.6	66.1	16.7	-
Trial	50.0	90.0	63.3	15.0	-
Adoption Per se	45.0	88.3	59.6	15.0	53.3
Adoption partially as recommended	30.0	40.0	36.7	8.3	11.7
Adoption as recommended	10.0	8.3	13.3	3.3	1.7
Practice understanding	23.7	21.7	16.7	5.0	33.0

Implicit in interpreting Table 3 is that the technology was suitable to all respondents in the sample, which of course was not the case. Those who adopted the practices were a fairly homogeneous progressive farmer group (Table 6). Conversely, farmers who had adopted few, if any, of the innovations, had different characteristics and form other fairly homogeneous groups.

Past researchers have considered the non-adoption of innovations as a sign of backwardness and conservatism (Lerner, 1985; Inkeles, 1983). On the other hand, failure to adopt innovations when the intended users may not have the necessary knowledge and skills can be regarded as a rational decision (Gonzales, 1987).

The majority of respondents were aware of fertiliser, improved seed and stalk borer control, but fewer were aware of cutworm control practices. Most farmers who evaluated and tried out the four practices also adopted them in varying degrees (see Table 3).

Table 4 shows that farmers who adopted improved seed also tended to use fertiliser and control stalk borer, but did not necessarily control cutworm nor did they control weeds effectively. The finding that use of fertiliser did not have a high correlation with weed control suggests that some farmers may perceive fertiliser as a means of compensating for lack of weed control. It was found that 33 percent of farmers practised virtually no weed control, while 53 per cent were assessed as having poor weed control. Use of fertiliser, improved seed and weed control correlated with yield per ha, whereas insect control had no relationship, possibly because cutworm control was seldom practised and stalk borer not adopted as recommended.

Table 4: Intercorrelation of Maize Practices and Yield per ha. 1989 (N = 60)

	1	2	3	4	5	6
1 Seed						
2 Fertiliser	0.70***					
3 Stalkborer	0.54***	0.54***				
4 Cutworm	0.13	0.10				
5 Weed control	0.22	0.27*	0.03	0.03		
6 Yield/ha	0.33*	0.42**	0.10	0.09	0.36***	-

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$

It is also clear that most farmers did not have a clear concept that all practices were inter-related and should be adopted simultaneously (Table 4). Individual practices adopted independently do not result in optimum yields.

In a step-wise multiple regression analysis in which maize yield per ha was entered as a dependent variable with the 5 dependent variables in Table 3, the final regression was significant (P<O, <01) and explained 24,66 of the variance (see Table 5). The findings on poor weed control tend to support the contention that the use of fertiliser may be perceived as compensating for poor weed control. Other factors such as soil type, soil preparation, planting date and plant population obviously also affect yield per ha.

Table 5: Regression Coefficient, Standard Error and F Ratios of Maize Yield per ha on Most Important Practice Variable R2 24,66

Independent variables	Coefficient	SE	F	Cumulative R^2
Fertiliser application	1.853	0.672	10.659**	17.29
Weed control	1.159	0.524	4.890*	24.66

F = 10.66 (for whole model) P<0.01. **0.01, *0.05

Factors Affecting Innovativeness

Other studies have shown that factors such as education, income, size of farm, cosmopoliteness, membership of farmer organisations, sources of information and other human factors have a positive influence on the adoption of recommended practices (Rogers and Svenning, 1969; Rogers, 1983). It is not intended to discuss the findings of this study in Table 6 in detail. Innovative crop farmers were better educated, had a higher level of literacy and more family members were in permanent and casual employment, resulting in the household having greater financial resources. They also played a greater informal leadership role and had good liaison and co-operation with tribal authorities.

Farmers with a high innovativeness score understandably had a better knowledge of farming practices. They also had a greater degree of empathy and political understanding, and higher education aspirations for their children. Contact with most inter-personal information sources and group contacts correlated with innovativeness. The printed and mass media had no significant influence on innovativeness, possible because these channels did not provide useful, practical information. Contact with television is a reflection of the higher economic status of progressive farmers (see Table 6).

Table 6: Factors Affecting Innovativeness in Maize Growing, 1989 (N = 60)

Characteristic	r	P<
PERSONAL		
Education	0.29	0.05
Literacy	0.26	0.05
Family members employed	0.85	0.001
Family-casual employment	0.38	0.01
SOCIAL		
Local leadership role	0.41	0.001
Chief/Head person influence	0.71	0.001
SOCIO-PSYCHIOLOGICAL		
Knowledge of practices	0.79	0.001
Empathy	0.52	0.001
Political understanding	0.30	0.05
Educational aspirations	0.27	0.05
INFORMATION SOURCES		
Extension contact	0.44	0,001
Co-op contact	0.25	0,05
Salesman contact	0.37	0,001
Group contact	0.43	0,001
Demonstration contact	0.26	0,05
Show attendance	0.29	0,05
Television contact	0.27	0.05

In a step-wise multiple regression analysis innovativeness score was entered as a dependent variable with 17 independent variables, the final regression model was significant (P< 0.0001) and explained 84.53 percent of the variance (Table 7).

Table 7: Regression Coefficient, Standard Error and F Ratios of Innovativeness Score of Maize Practices on Most Important Variables (R^2 84.53)

Independent variable	Coefficient	SE	F	Cumulative R^2
Family members employed	0.989	.0.163	154.5	72.71
Group contact	0.130	0.030	18.326	74.35
Contact with salesman	0.272	0.097	4,400	82.04
Knowledge of maize	0.306	0.147	6.074	82.83
Education level	0.079	0.050	2.459	84.53

F = 59.01 (for whole model) P<0.0001

The model shown in Table 7 suggests that innovativeness can be predicted in terms of family members in employment, which in turn relates to greater resources for farming inputs.

Contact with farmer groups and salesmen, knowledge of practices and level of education were also important predictors of innovativeness.

Maize Yield

The in-field yield per hectare in the two survey areas averaged 414 kg., which is considerably lower than the target yield of 2000 kg and a potential of 3,000 kg. The highest yield recorded was 2,450 kg per ha. The majority of respondents (72%) practised mixed cropping of maize with beans, pumpkins and sorghum. It was not possible to assess the yield of interplanted crops, but field observations suggest that 20-30% could be added to the value of maize yields. Technology for mixed cropping still needs to be developed. On average, respondents cultivated an area of 1.97 ha. A general conclusion was that approximately 70 per cent of respondents did not fully meet their annual household grain requirements of 175 kg per person (Tapson, 1985).

According to Table 8 a step-wise regression analysis in which maize yield was entered as a dependent variable on 16 independent variables, the total regression model was significant ($P < 0.000$) with a co-efficient of determination of 42.74 percent. The finding that household members in employment and the presence of the male head of household were the most important variables explaining yield suggests that those farmers with greater financial and labour resources were the most efficient farmers. They also had greater contact with extension workers and attended farmers days, which confirms the "progressive farmer" strategy adopted by extension services. Table 8 shows only the 5 major independent variables.

Table 8: Regression Coefficient, Standard Error and F Ratios of Maize Yield per ha on Most Important Farmer Characteristic Variables. (R^2 42.74)

Independent variable	Coefficient	SE	F	Cumulative R^2
Household members in employment	0.914	0.594	6.467	26.76
Male as decision maker	1.364	0.462	4.943	33.47
Contact with extension	3.786	2.221	3.106	37.51
Attend farmers days	2.876	1.419	2.398	40.55
Influence of tribal authority	0.976	0.523	3.478	42.74

$F = 7.02$ (whole model) $P<0.0001$

Conclusion

The results of this study show that farming populations are not homogeneous. Progressive farmers tend to be better educated, they have greater resources, and a better knowledge of farming. They also have more empathy and political understanding and greater access to farming information. Conversely, low access and resource poor farmers do not have these attributes, or only have them in varying degrees. It follows that when a population is not homogeneous in important aspects relative to farming practices introduced, the farming practices do not have the same relevance for every farmer. This is the main reason why crop production "package programmes" have generally failed to benefit the majority of farmers.

The implication of these findings for technology transfer is simply that different "packages" are required for relatively homogeneous groups of farmers. Even illiterate farmers are not inherently resistant to change, but they are selective in their uptake of technology, and criteria of acceptability vary widely according to household resources and needs. Local knowledge of farmers and the environment is paramount in identifying and developing technology likely to meet constraints and opportunities for different homogeneous target categories of farmers. This should be combined with specific instruction on **HOW** to implement practices.

Researchers have tended to develop technology which is suited to the conditions of the more progressive farmers. This is a natural tendency because it is easier to develop technology that suits their conditions than it is to develop technology for low access and resource poor farmers. Although research for the latter category of farmers may not be prestigious for crop scientists, it is nevertheless essential if one is to improve the lot of resource poor small-scale farmers. Of particular importance is the development of low input technology for mixed cropping, as well as technology for reducing tillage costs. The problem of inadequate labour for weed control also needs to be tackled.

The effectiveness of technology transfer is also a prime determinant of diffusion. Because of evidence in this study of a lack of planned communication programmes (Fig. 1), extension workers have followed the "progressive farmer" strategy in effectively contacting only about one in ten farmers. As suggested in this study, and as found elsewhere in developing countries, the early adopters are often seen as atypical by the rest of the community and innovations do not "trickle down" to less progressive farmers (Benor, Harrison and Baxter 1984, p. 27; Rogers, 1983, p.27).

This study has clearly shown that a lack of knowledge, skills and understanding of farming practices is a major constraint to improved crop production (Table 3). In the process of cognitive learning individuals and groups of farmers must be provided with information to enable them to evaluate alternative courses of action, and clearly understand and be taught the skills of decision-making and management required for sustained adoption. It is important that extension workers understand the diffusion process and are able to use it in planning different messages and extension techniques for each stage of the process. They must focus on the nuts and bolts of "how to do it".

The social structure must be suitable to bring about agricultural change successfully. Not only is there a need to upgrade the training of extension workers, but also to actively involve local farmers in developing technology transfer programmes, particularly through strong local leaders and organisations. The Farming Systems Research Extension (FSR/E) approach tends to widen the understanding and harmonise the views of researchers, subject-matter specialists, extension workers and farmers. Its potential offers still more promise if it can accommodate external institutional factors while addressing farmer-specific technological priorities.

Towards a Strategy

There are good reasons at national and community level for reinforcing technology transfer in the Homelands. Firstly, with the current poverty situation and increasing unemployment there is a need to produce cheap food, and secondly, the economy cannot support massive welfare programmes. In this situation, technology transfer can no longer be left as a laissez faire policy.

In seeking to support both progressive and less progressive farmers through appropriate technology transfer systems a target approach is called for which includes:

a) dividing heterogeneous farmers into target categories according to resources, gender, education, life cycle and other indicators as found in this study, using a marketing research approach. Segmentation into target categories require important judgements;

b) analyse within each category technology which can be utilised, by different target categories, as well as plan communication channels to effectively reach each category;

c) develop suitable targeted technology messages "recommendation domains" on the basis of diagnostic surveys as in b) above. Particular attention needs to be given to low input-low output technology and inter-cropping or mixed cropping technology;

d) test technology and communication channels, with the emphasis on working with groups, with representative members of each category;

e) implement technology transfer systems through restructuring and managing research and extension services, to ensure that target categories are provided with knowledge and skills on a regular basis throughout the farming cycle;

f) Evaluate regularly on the basis of farmer feedback and re-plan research and technology transfer strategies.

There is no doubt that the above strategy can succeed in improving small scale farmer production and living standards. However, it will require commitment, effort and action from politicians, researchers, extension workers and farmers themselves.

References

BELTRAN, L.R.S., (1976). "Alien premices, objects and methods in Latin American communication research". Communication Research. 3a(2) pp lO7 - 134.

BEMBRIDGE, T.J., (1984). A systems approach study of agricultural development in Transkei. Ph.D Thesis, University of Transkei.

BENOR, D.; HARRISON, J.O. and BAXTER, M., (1984). Agricultural extension: The training and visit system. Washington, D.C.: World Bank.

ESMAN, M.J. and UPHOFF, N.T., (1984). Organizational intermediaries in rural development. Ithaca, New York: Cornell University Press.

FLEIGEL, F.C., (1966). "Literacy and exposure to instrumental information among farmers in Southern Brazil". Rural Sociology, 3 (1) pp l5 -28.

FLEIGEL, F.C. and VAN ES, J.C., (1983). Adoption and diffusion. In: (ed)Summers, G.F. Technology and social change in rural areas. Boulder, Colorado: Westview Press.

GONZALES, H., (1987). Some Myths of Communication and Development. Department of Agricultural Journalism, Madison: University of Wisconsin. (mimeo).

GRUNIG, J., (1975). "A multi-systems theory of organizational communication." Communication Research. 2 (2) pp 99 - 136.

HOBBS, D.J.; BEAL G.M. and BOHLEN, J.M., (1964). "The relation of farm operator values and attitudes to their economic performance". Rural Sociology, Report No. 33. Iowa State University.

INKELES, A., (1983). Exploring individual modernity.New York: Columbia University Press.

KOSHY, T.A., (1977). "Literacy education in development". In: ed. Niehoff R.O. Non-formal education and the rural poor. Michigan: Michigan State University Press.

LARSEN, J.K., (1980). "Knowledge utilization: What is it?" Knowledge, Creation, Diffusion and Utilization. 1 (3) pp 421 - 422.

LARSEN, J.K. and WERNER, P.D., (1981). "Measuring utilization of mental health program consultation". In: ed: Ciarlo J.A. Utilizing evaluation: Concepts and measurement techniques. Beverley Hills: Sage PublicationsB.

LERNER, D., (1985). The passing of traditional society: modernizing the middle east. New York: The Free Press.

NIEHOFF, A. and ANDERSON, (1965). "Peasant fatalism and socio-economic innovation". Human Organization. 25 pp 273 - 283.

PETIT, M., (1976). "Farmers' adoption of technical renovation". European Review of Agricultural Economics 3: pp. 293 - 322.

POTGIETER, J.F., (1987). The household subsistence level in the major urban centres of the Republic of South Africa. Institute of Planning, University of Port Elizabeth, Port Elizabeth. Paper No. 66.

ROGERS, E.M., (1983). Diffusion of innovations. New York: The Free Press.

ROGERS, E.M. and AGARWALA-Rogers, R., (1976). *Communication in organizations.* New York: The Free Press.

ROGERS, E.M. and KIM, J., (1985). "The diffusion of innovations in public organizations". In: eds. Merrit, R.L. & Merrit, A.J. Handbook on the Comparative Study of Innovation. Beverley Hills, California: Sage Publications.

ROGERS, E.M. and KINCAID, D.L., (1981). Communication Networks: Towards a New Paradigm for Research. New York: Free Press..

ROGERS, E.M. and SVENNING, L., (1969). Modernization among peasants: The impact of communication. New York: Holt, Rinehart and Winston Inc.

ROGERS, E.M. and VAN DEN BAN, A., (1963). "Research on the diffusion of agricultural innovations in the United States and the Netherlands". Sociologica Ruralis. 3 (1), pp 38 - 51.

RÖLING, N.G., (1988). Extension science: information systems in agricultural development. Cambridge: Cambridge University Press.

RYAN, B. and GROSS, N.C., (1943). "The diffusion of hybrid seed corn in two Iowa communities". Rural Sociology, 8 pp 15 - 24.

TAPSON, D.R., (1985). "The agricultural potential of the Homelands: Problems and prospects". In: ed. Gilomee H, and Schlemmer, L. Up against the fences: Poverty, passes and privilege in South Africa. Cape Town: David Philip Ltd.

WILSON, G. and GALLUP, C., (1955). Extension teaching methods and other factors that influence adoption of agricultural and home economics practices. Washington D.C.: United States Department of Agriculture, Circular 495.

Extension and the Picture: Conclusions from a Semiotic Theory of Picture Communication

Volker Hoffmann

A picture tells more than thousand words?
A word tells more than thousand pictures?
How far can we replace words by pictures?

Writing a book about picture supported communication as a means of promoting rural development in Africa (Hoffman, 1991) I came to the general question: What is the potential and what are the limitations of communicating with pictures?

In the initial decades of development aid, the potential of picture communication was overrated, pictures were seen as a universal answer for self-explanatory language bridging the gap between different spoken languages and between literate and illiterates.

In the 70´s, a series of empirical research publications, testing the comprehensiveness of different types of pictures with illiterates (UNICEF, 1975; Fussel and Haaland, 1976; Shali, 1969; Fuglesang, 1973) created a rather pessimistic view. Pictures had to be read like a script and this required a special learning effort, leading to the so-called "visual literacy". By this approach, the potential of picture communication was underestimated.

Some of the findings did not fit, and a theory to explain the differences and the contradictions in the empirical findings was not available. Studying the literature in search of the parts for a theoretical framework for picture communication, I found semiotics to be useful for such a purpose. In this paper, I wish to describe a line of thought in which I try to develop the theoretical considerations, in order to clarify the potential and the limitations of pictures as a means of communication, and to give an example of practical conclusions, which can be drawn from such a theoretical framework.

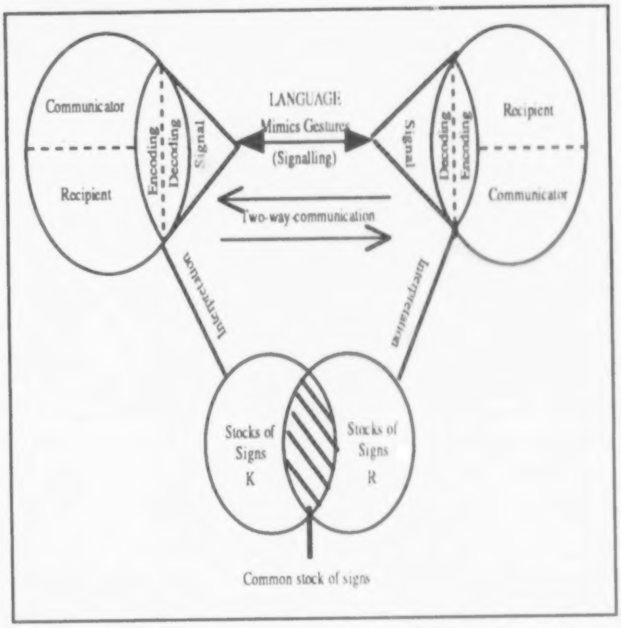
Two Models of Communication

The first two pictures show two rather well known models of communication; a) direct interpersonal and b) indirect through technical media. I hope, all readers will find their own meaning in the communication process represented. The important aspects are the following:

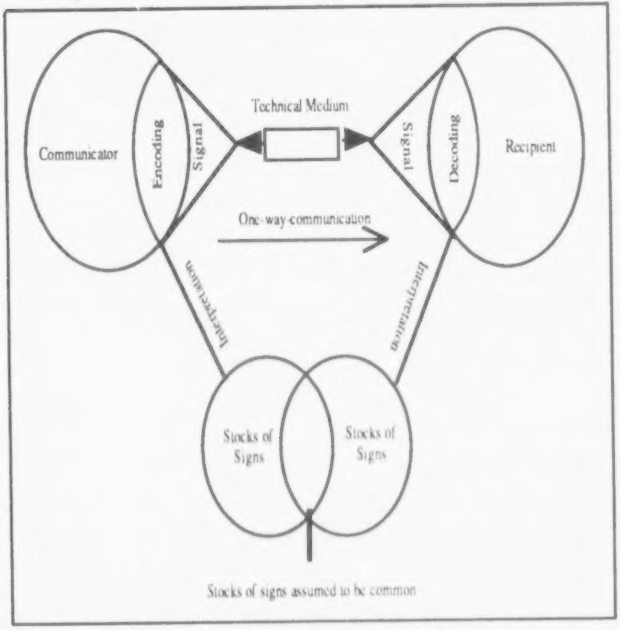
-Communication involves signs in which meaning is encoded into signals and after decoding must be re-interpreted by the recipient.

-The quality of the encoding, the decoding, and the amount of signs that are common to the actors determines the quality of interpretation or lets say the understanding.

1 - *Model of direct communication*[*]


Communicator
Recipient
Encoding
Decoding
Signal
LANGUAGE:
Mimics Gestures
(Signalling)
Two-way-communication
Signal
Decoding
Encoding
Recipient
Communicator
Interpretation
Interpretation
Stocks of Signs K
Stocks of Signs R
Common stock of signs

2 - *Model of indirect communication*[*]


Communicator
Encoding
Signal
Technical Medium
One-way-communication
Signal
Decoding
Recipient
Interpretation
Interpretation
Stocks of Signs
Stocks of Signs
Stocks of signs assumed to be common

[*] Both models are taken from KOLB (1973), p. 63 and 67, cited from ARMBRUSTER, B. (1978) p. 50, translation by the author.

Modes of Communication and Their Elements

The signs used in communication can be very different. How to we classify this diversity in a manner creating an overview and facilitating further insight into our question of picture communication? A proposition by Gross, 1974 appears to be very helpful. He distinguished five "primary modes of symbolic behaviour characterising roughly a culture"(Gross, 1974). These are: linguistic/lexical; social-gesture; iconic; logico-mathematical; musical". Beyond these basic modes of communication he establishes "derived modes" and "codes" without giving further examples or details. The 5 primary modes, he characterises are the following:

- "a range of objects and events or field of reference
- distinctive memory-storage capacity
- a set of operations and transformations
- specific principles of ordering which govern the formulation and communication of meaning
- non-translatability into other modes"(Gross, 1974, p.60).

Specifically, the last mentioned feature stimulated my interest. If this was correct, the whole world of communication could be classified into only five categories, one of them being the iconic mode or the picture communication.

A closer look demonstrated that non-translatability is perhaps too strict. Conversions from one mode into another are sometimes possible. However they change the quality of expression. For example, ("Traduttore, Traditore") this Italian statement points out, that the translator is a traitor. Likewise as is the case in translations between languages, a translation between modes of communications can change the meaning, even if the mode was the most appropriate one, it sometimes lessens the understanding. A total loss of the intended meaning happens in case of non-translatability.

A short anecdote may illustrate this point: A famous ballet-dancer was asked to explain the meaning of her dance performance. She answered, if I could express it in words, I need not dance it.

Taking the proposition of Gross, I have split it up into various elements to attain the level of signs. The results of my effort is illustrated in table 3. Instead of codes, I use the term sign-system and for "derived modes" a rather abstract term, it is replaced by forms of expressive/representation. The main questions reappear at the end of the iconic mode section: Do picture-languages exist? Are there distinctive picture signs?

Table 3: Modes of Communication and Their Elements

Mode of communication	Forms of expressive/representation	Sign-systems	Signs
Linguistic/ Lexical	Poetry Prose	Written languages Spoken languages	Script-signs (letters) Sound-signs (phonemes)
Social - gesture	Pantomime Dance	Facial expression Body expression	Mimic-signs Gesture-signs
Iconic	Graphics Painting Sculpture Photography Film	Picture-languages ?	Picture-signs ? Iconic signs
Logico- Mathematical	Algebra Set-theory Integral/ Differential Calculus Computing-programs	Formulas Programming-languages Numerical systems Sets Equation systems	Arithmetic signs Figures Logic-signs Set-signs
Music	Symphony Sonata Song Dance music	Musical note-system Staff	Music-signs

Another concept fits into this frame. Goodman, 1968; Salomon, 1979; and Gardner, Howard, Perkins, 1974) pointed out, that perfect sign systems, like the musical note system are notation systems. They fulfil the criteria of: 1) unambiguity; 2) being syntactically disjoint; 3) being semantically disjoint; 4) syntactic finite differentiation and 5) semantic finite differentiation. But it is evident, that pictures are far from fulfilling all these requirements. Therefore the concept of notation was not incorporated directly into table 3. Later on, when comparing pictures and spoken words, on the sign-level I will come back to some of Goodman's criteria. But first I want to guide the reader back to the beginnings of semiotics.

Three lessons from Charles Saunders Peirce

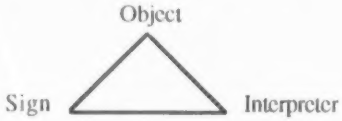
Peirce, 1964 was the founder of semiotics, the sign-science. Three basic lessons seem to be highly useful for understanding picture communication (see table 4).

Table 4: Three Lessons from Charles Saunders Peirce

1. His Definition of Sign

A sign stands for something else
Signs are representations, substitutes

2. His Semiotic Triangle



3. His Sign Classification

Kinds of Signs	Connected to the object, they refer to, by:
Index	Contiguity; Copresence Æ Indicator, Symptom Cause-effect-relations
Icon	Similarity, Resemblance
Symbol	Convention

We are socialised to understand that a sign is representative, and stands for something else. The sign's meaning is not determined by itself, but derives from interactions in the semiotic triangle, where the interpreter connects signs with objects.

The most useful lesson learned from Peirce involves his approach to sign classification, which for our purpose is not only the most recent but also advantageous compared with earlier attempts, for example, by Morris, 1955. Unfortunately, we have to pay the price with some confusion about "iconic". An iconic mode of communication involves not only the use of pictures, but iconic signs can also be words, whose sound resemble an event (Onomatopoeia) or a pantomime representing an object by resemblance or a piece of music, like the Moldan from Santana, imitating natural sounds of a small river-valley, and so on. The other way around we come to "non-iconicicous" when we look at picture symbols having no similarities with the "depicted" object. Once this inconvenience is mastered, it allows for the linkage to important clarifying distinctions in picture communication. The next step will demonstrate this idea.

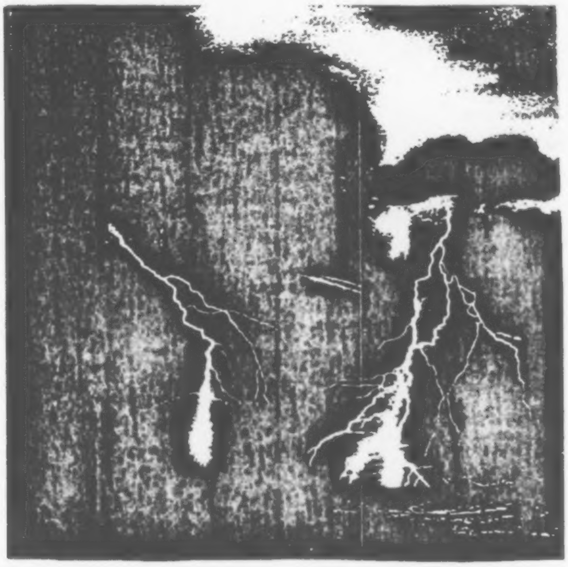
Sign - Classification Exemplified

Applying the sign classification of Peirce to a comparison of the linguistic/lexical and the iconic mode of communication, seems to be useful as well for a better understanding of the sign classification to important differences between picture signs and sound signs. Table 5 shows the result of comparison using the example of a thunderstorm. Picture 6 gives an example of an iconic picture of a thunderstorm.

Table 5: Sign Classification Exemplified

Object Thunderstorm	Picture-sign Picture Visible To see (Eyes)	Sound-signs Sound Audible To hear (Ears)
Index	Lightning	Thunder
Icon	Similar visual image Dark clouds Rain Lightning	Similar noise Wind Raindrops Thunderclaps (metal-sheet?)
Symbol	Written words Gewitter Tempète, Orage Thunderstorm	Kettledrum-beats? Spoken words Gewitter Tempète, Orage Thunderstorm ......

Picture 6: An Iconic Depiction of a Thunderstorm ... from an Advertisement of Opel, General Motors.



Word and Picture in a Further Comparison

Now we are prepared to penetrate deeper into this comparison between words and pictures. In the previous discussion, the written word was shown to be a picture-sign and/or a silent symbolic representation. In our comparison, the distinctions become clear in distinguishing spoken words with pictures. Table 7 attempts to collate all relevant features and to point out all the important differences. As a first endeavour, we see that there are many and very basic differences, which underline the assumption about modes of communication, and that translation is not possible without losses.

We can not replace words by pictures. But pictures and words complement each other in their potential for communication. This finding shall be further differentiated now.

Table 7: Word and Picture in a Further Comparison

Criteria	Spoken words	Pictures
Transmission by	Sound-waves	Light-waves
Kind of Signs	Sound-signs (Sound, Syllable, Word) Disjunctive Discontinuous segregated Finite (Æ dictionary)	Picture-signs (Point, Line, Surface) Replete, Dense Continuous unsegregated Infinite (like sentences)
Arrangement of Signs	Independent from space Time-bound Successive (Simultaneous = Multi-sound, Polyphony) Syntactically hierarchical	Space-bound Independent from time Simultaneous (Successive = Picture-series, Movie) Syntactically non hierarchical
Features of Arrangement	Pitch, Pronunciation, Timbre Sonority, Accentuation, Loudness, Speed, Time, Rhythm	Brightness, Brilliance Colour Forms, Shapes Texture (Focus)
Special Appropriateness for the representation of:	Linguistic Information Terms, mutually related through grammar Abstract Terms Ideas, Concepts	Topological Information Forms, Outlines, Shapes, "Gestalt" Spatial Relations Concrete Objects

Synopsis of Kinds of Visualisation

Let us now follow the picture line of thought and try to find out their potentials and limitations as means to communication. We will check through five classes of messages: Objects, Quantities, Relations, Processes and Concepts, and differentiate the pictures on a line from concrete to abstract, from iconic to symbolic. Compared with Peirce´s ideas, the index disappears, because index pictures do not occur very often (for example footprints or like very common pictures, the photographs are indexial and iconic at the same time). Instead, the author introduces a middle-clan, symbolic-analogous depiction, because these pictures play a more important role in the world of communication.

The result of this synopsis in Table 8 points out to be:

- Iconic pictures are best utilised to represent concrete objects. If the depiction is "well made" even pictorial illiterate persons will understand their meaning, that is recognise the depicted object, provided, the object as such is known to them.
- The iconic picture is less suited if we go ahead on the horizontal line and from definition must be totally untested to represent concepts or more abstract ideas.
- The symbolic picture is best suited to represent concepts and ideas. To depict objects in a symbolic manner would be a useless detour and would complicate the communication process instead of facilitating the process.
- In the middle class of symbolic analogous pictures we find all kinds of plans, maps and diagrams, which prove to be useful "visualisations" of objects, quantities, relations and processes, and translate, for example, symbolic abstract representations into something more visible. Normally the abstract symbolic representation is shorter and more precise, the illustration needs more place and gives only a rougher but more vivid idea.
- All kinds of pictures, besides the iconic, naturalistic depiction's of objects, depend on conventions, the recipients must have learned before.

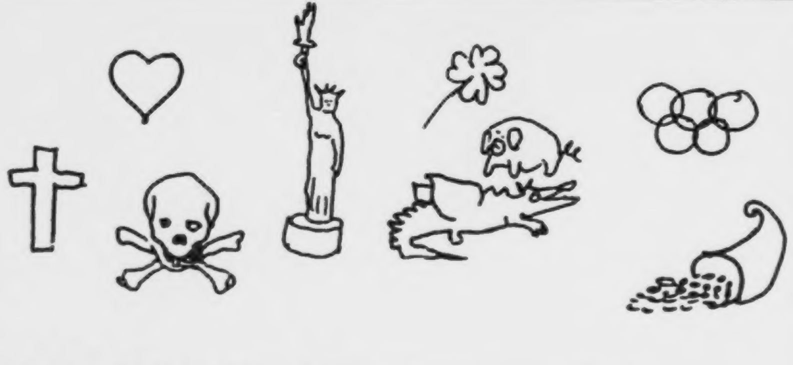
Table 8: Synopsis of Kinds of Visualisation (in the 2-d-Standby-Picture)

	Objects	Quantities	Relations	Processes	Concepts
ICONIC externally similar resembling	Depiction from naturalistic till strongly stylised	Comparable different containers piles, heaps	Depiction of gestures, mimics of persons	Depiction of persons in action	
SYMBOLIC-ANALOGOUS structurally or functionally similar	Construction Wiring - City - Road **Plans/Maps**	Isotype (set-statistics) Bar - Line - Circle **Diagrams/ Charts**	Picture-Metaphors Tree - Net - Line **Diagrams/ Charts**	Flow Procedure - Effects **Diagrams/ Charts**	Picture - Metaphors
SYMBOLIC-ABSTRACT only determined by conventions	Symbol-Figures Brands, Marks, Tokens	Figures, Numbers Formulas, Units	Arithmetic Signs Logic Signs Formulas Tables	Formulas Computing Programmes	**Picture-Symbols** Symbol-Figures Brands, Marks, Tokens, Formulas

Some Examples

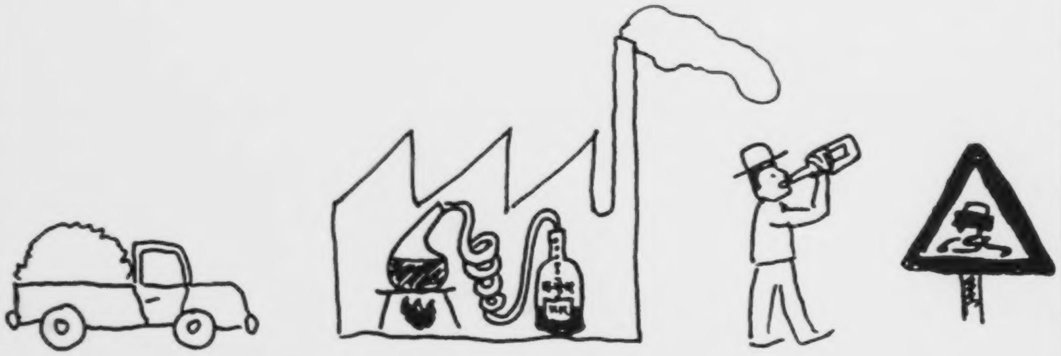
The synopsis has 14 fields, let us start bottom-up from field 14 to end up on the top in field 1 with some picture examples. Most of the examples are directly taken or got their idea from Gralki, 1985. Field 4 is taken from an advertisement for ACER-Computers; field 3 form Schulz Von Thus, 1977 and Field 1 contains three animals from Steiner, 1982. All of them allow us to visualise through pictures others representation of an object or concept in which they use to communicate with someone else.

Field 14: Concepts, Ideas: Symbolic-Abstract



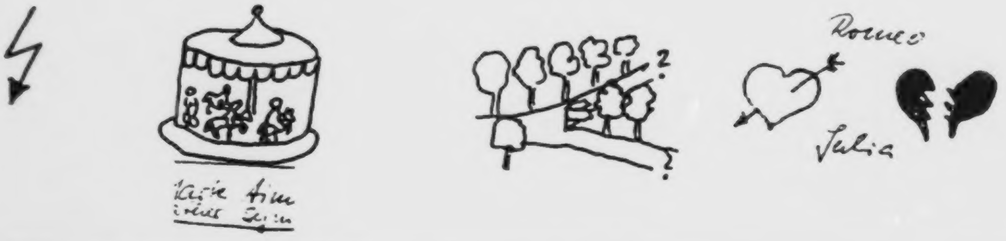
Dead, Love, Danger, Liberty, Luck, Olympic Games, Wealth

Field 13: Process: Symbolic-Abstract



Brandy-processing (most of the single elements are rather iconic)

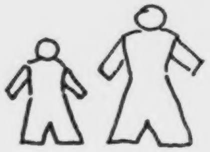
Field 12: Relations: Symbolic Abstract

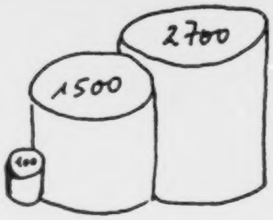


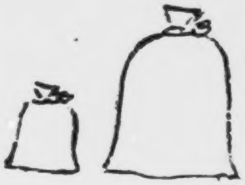
Conflict, Mark time, Decision, Love, Separation (rather symbolic - analogous)

BEST COPY AVAILABLE

Field 11: Quantities, Numbers: Symbolic Abstract



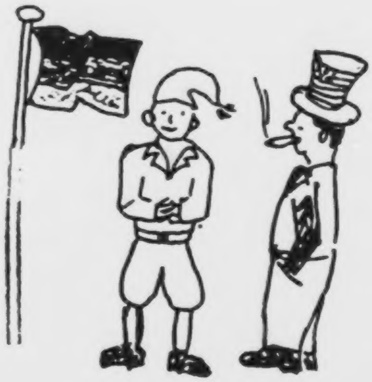




a<b a+b+c = 4300 a<b

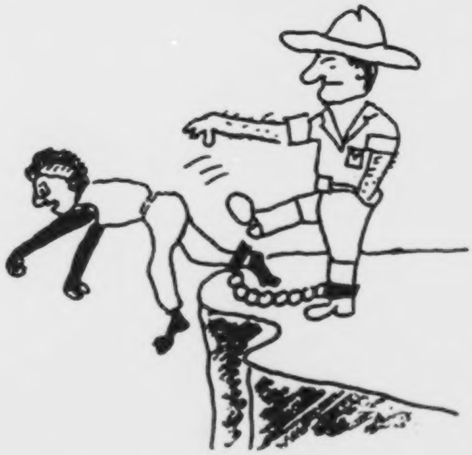
Not very appropriate, better to use isotype. Field 7 and 2

Field 10: Objects: Symbolic-Abstract



Germany U.S.A.

Field 9: Concepts, Ideas: Symbolic Analogous



No comment

Field 8: Processes: Symbolic Analogous

yeast Æ

sugar Æ **fermentation** Æ heat

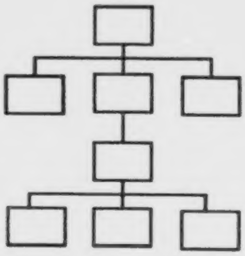
water Æ

Æ heat
Æ alcohol
Æ water (H_20)
Æ carbon dioxide ($C0_2$)

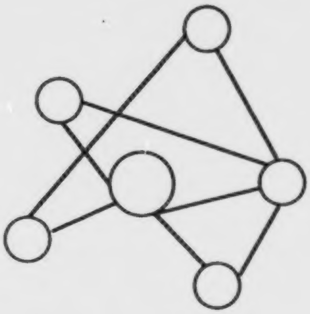
container

Alcoholic fermentation, compare with field 14
(All single elements are purely symbolic - abstract)

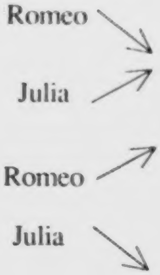
Field 7: Relations: Symbolic Analogous



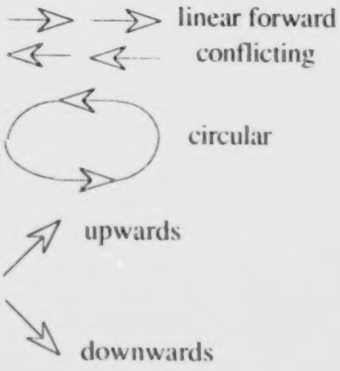
Tree-Diagram



Organigram Net-diagram


Romeo
Julia
Romeo
Julia

Sympathy

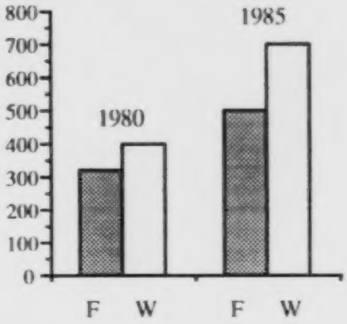

linear forward
conflicting
circular
upwards
downwards

Antipathy

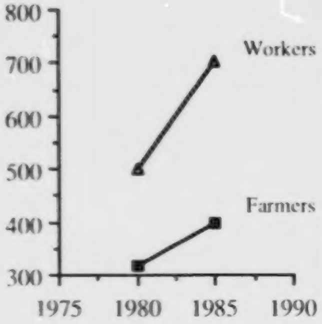
Field 6: Quantities, Numbers: Symbolic Analogous

Group \ Year	1980	1985
Farmers	320	400
Workers	500	700

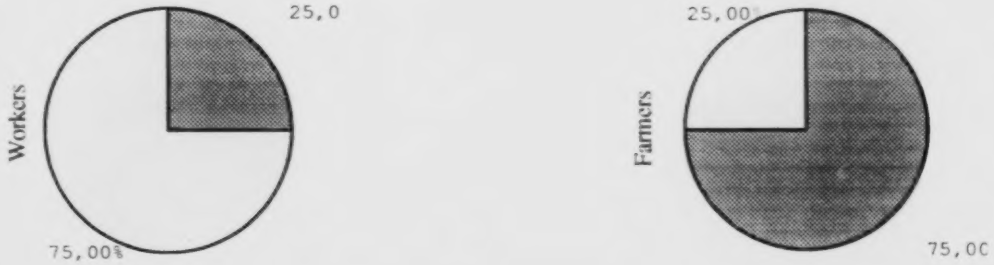
Table
Average income in X-Land in $



Bar-chart

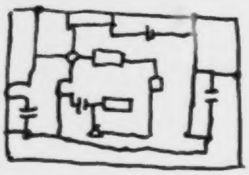


Line-chart



Circle-chart
Increase of income from 1980-1985

Field 5: Objects: Symbolic-Analogous

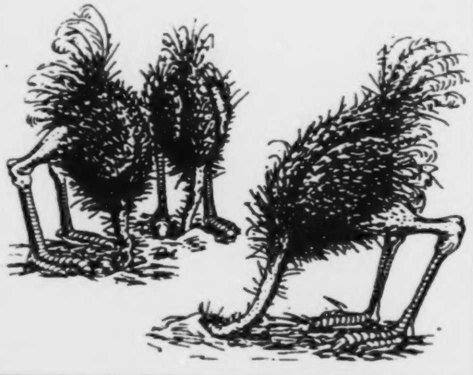


BERLIN
BONN
STUTTGART

Radio

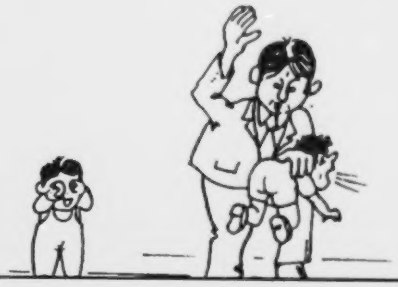
Germany

Field 4: Processes: Iconic



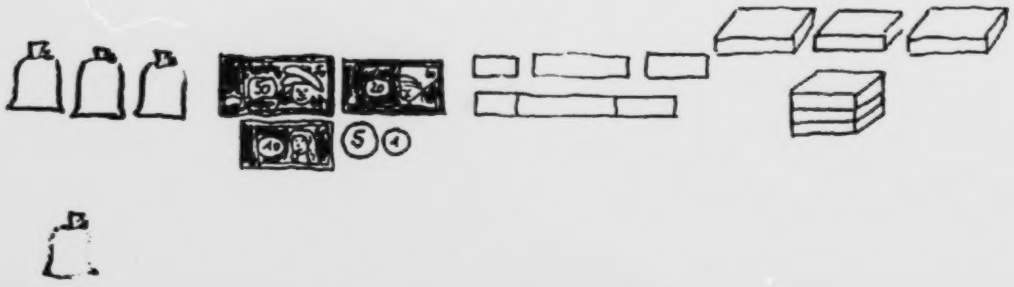
No comment

Field 3: Relations: Iconic



Exerting power (As well as showing a process)

Field 2: Quantities, Numbers: Iconic



3

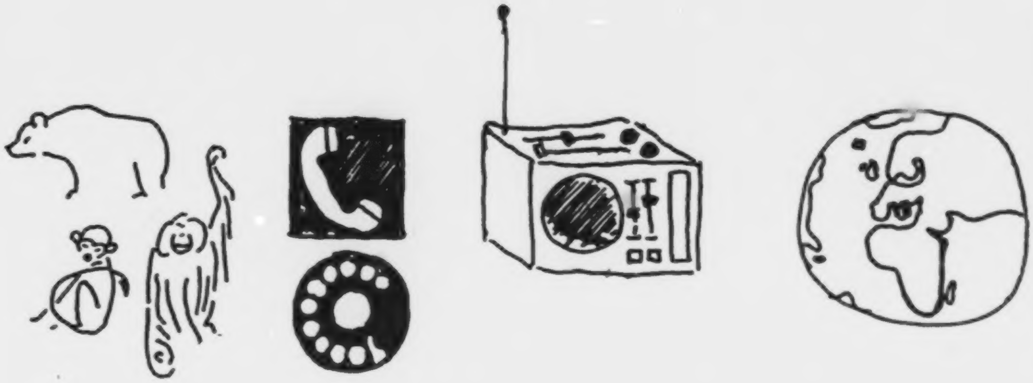
86 DM

LXXXVI DM

a+b+c = (a+b+c)

a+a+a = 3a

Field 1: Objects: Iconic

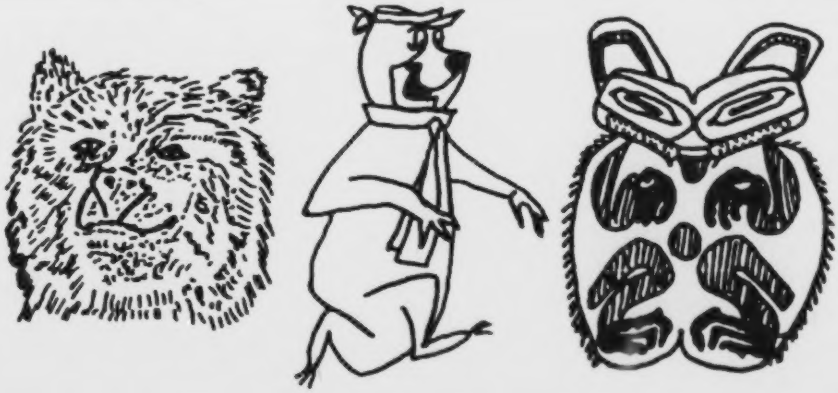


Bear, gibbon, orang-utan, phone, radio, earth

Iconic pictures of objects, what does it mean?

Iconic pictures are characterised by a certain similarity to the object depicted. Similar to external features, not to internal structures. But what is seen to be similar or to be different, depends highly on the interpretation. People have "cognitive schemes" in their minds which and distinguish objects. As more of the "schemes" match with the picture, it becomes easier to recognise the picture. Most of these "schemes" are socially shared and artists take them into consideration by choosing appropriate styles of representation: How much these styles can differ should be demonstrated by table 9.

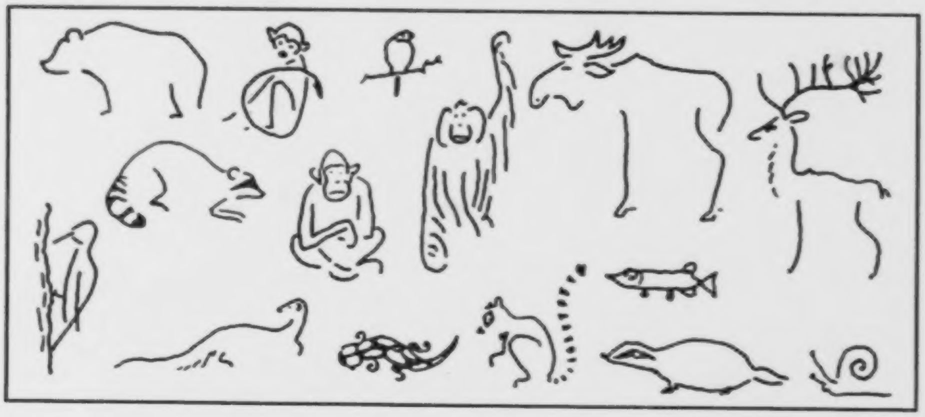
Picture 9 - Styles of visual iconic depiction



Which bear is most "naturalistic?"

Not all features of objects are of equal importance to distinguish and to determine them. The overall impression, the "gestalt" is mainly determined by a few invariant clue elements. How well this reduction works can be shown in table 10.

Picture 10 - Animal - "Shorthand's" from Gerolf STEINER (1982)



Concentration on "invariable clue elements"

Conclusions

Words and pictures have mainly different properties of symbolic communication:

1) They complement each other and improve the quality of information, if they are used according to their respective strengths.

2) They worsen the quality of information, if they are used according to their respective weaknesses.

Avoid interference = different or contradictory messages on the word - and on the picture - "channel".

If you use iconic pictures, assure the appropriate style of representation.

If you use symbolic forms of pictures, assure that the representation conventions are known to the audience, or explain them, before using.

If at all possible, combine pictures with direct personal communication, and feedback will help you.

Finally: Test your material.

References

ARMBRUSTER, B. (1978). Einstieg in den Problemkreis Mediendidaktik über Begriffsdefinitione.

ARMBRUSTER, B., HERTKORN, O., Hrsg (1978). Allgemeine Mediendidaktik.

BOAS, F. (1927) Primitive Art.

FITTKAU, B. Müller-Wolf, H.-M., SCHULTZ von Thun, F. (1977). Kommunizieren lernen (und umlerner).

FUGLESANG, A. (1973). Applied communication in developing countries. Ideas and observations.

FUSSEL, D., HAALAND, A. (1976). Communicating with pictures in Nepal.

GARDNER, H., HOWARD, V., PERKINS, D. (1974). Symbol systems: a philosophical, psychological and educational investigation.

GOODMAN, N.,(1968). Languages of art: an approach to a theory of symbols.

GRALKY, H.O. (1985). Framework of visualization.

GROSS, L. (1974). Modes of communication and the acquisition of sybolic competence.

HOFFMANN, V. (1991). Bildgestützte Kommunikation in Schwarz-Africa.

JACOBSON, R. (1964). On visual and auditory signs.

MANGAN, J. (1978). Cultural conventions of pictorial representation: Iconic literacy and education.

MORRIS, C. (1955). Signs, Language and Behavior.

NEURATH, O. (1980). International Picture Language/Internationale Bildersprache.

NDS, UNICEF (1975). Communicating with pictures.

OLSON, D. R. (1974). Media and symbols: the forms of expression, communication and education.

PEIRCE, C. S. (1965). Über Zeichen.

SALOMAN, G. (1979) Interaction of media, cognition and learning.

SCHULZ Von Thun, F. (1977). Psychologische Vorgänge in der zwischenmenschlichen Kommunikation.

SHAW, B. (1969). Visual symbols survey.

STEINER, G. (1982). Tierzeichungen in Kürzeln.

ULLRICH, G., KRAPPITZ, U. (1985). Participatory approaches for cooperative group events-introduction and examples of application.

WATZLAWICK, P. (1976). Wie wirklich ist die Wirlichkeit?

Extension Alternatives to TOT[43] and the Agricultural Knowledge Perspective Reflections after the Bad Ball Workshop[44]

María A. Salas and Hermann J. Tillmann

After 100 years of formally organised agricultural extension, its primary function in delivering technical or problem-solving knowledge has been clearly reconfirmed (FAO, *Global consultation on agricultural extension*, 1990) without taking into account that the monological character of that function is causing **more ecological, social and cultural problems and new conflicts rather than helping to alleviate human difficulties.** The monological form of knowledge dissemination of the prevailing TOT-model of extension has been pointed out by several authors in excellent critiques to the TOT-Model (Transfer-of-Technology): Röling (1991), Chambers (1991), Rhoades (1989), Richards (1986) and Moris (1991).

Nevertheless, some open, challenging questions emerge when dealing with alternatives to TOT in the context of peasant societies in the Third World which deserve a deeper examination of some fundamental matters. Its relevance for industrialised countries is not examined here, but there may be some parallel thoughts and research lines.

In the first place, the interactions between knowledge, culture, communication and power within the framework of the agricultural knowledge system, secondly the role of knowledge which is generated outside the institutional framework of science and technology.

In the following paper we will develop some ideas related to the basic elements to be considered for a participatory extension overcoming TOT, topic which engaged most of practitioners and scientists attending the BadBoll workshop in May 91. We maintain the term participatory extension in spite of linguistic and historical contradictions which connotes the combination of both terms, because it is exactly a theoretical and praxeological orientation related to participation that is missing in the elaboration of Extension Alternatives.

The Scientific Reversal

There are a number of useful concepts with practical value that have been explored and developed out of the discussion about alternatives to TOT. One key concept is Chamber's **Reversal.** We utilise the term not just in relating to the training of scientists and extensionists into a new set of attitudes toward the social group of farmers and peasants. We extend it to a larger framework in which science is included as part of the Reversal process. That means, for a construction of an alternative to the model of monological extension, a basic condition is a new type of science (a new paradigm) based on premises of knowledge production emancipated from the reductionist, fragmentary, objective, static and universal type of logic (Benvenuti, 1991, Marglin, 1991, Huizer, 1991). Instead, a different way of science should be encouraged, having as orientation concepts like **holism, inter subjectivity, emic (from within), historical-dynamic and situation bound** using methods for the production of knowledge (Dissanayake, 1990, Ison, 1991, Bawden & Macadam, 1991).

---

[43] TOT is a widely used abbreviation for Transfer of Technology as a specific development paradigm. That on the same time TOT means 'dead' in german is casual.

[44] In may of 1991 the Institute for Agricultural Extension organized together with the Protestant Academy of Bad Boll an International Workshop about Agricultural Knowledge Systems and the Role of Extension. The proceedings of this workshop are available at our institute.

The shift does not consist in incorporating applied social research into agricultural knowledge production or replacing some quantitative research methods for a couple of qualitative techniques. When we are speaking about a reversal in science it is meant as a fundamental epistemological reorientation (with and by the local people themselves), coherent in its concepts, values, methods and action. It is based on the reconstruction and development of local - so called - people's science which exists, subsists and emerges out of the cultural practice of agriculture of peasant groups which constitute the majority of rural people in the Third World.

Empowerment

Another useful concept, product of a reflective social science is a contribution by Participatory Action Research, led by Orlando Fals

Borda (1984, 1988). He suggests that the output of knowledge generation should **lead to strengthening the action potential of traditionally marginalized people.** Empowerment, in this sense, focuses on an aspect commonly neglected in the elaboration of extension alternatives. Knowledge has been conceived as a cognitive good produced and transferred from person to person with neutral qualities, forgetting the social and political dynamic that its creation and use generates. For this reason, conflicts and problems arising from the TOT policy cannot be perceived by the extension scientists. But if knowledge ought to be a countervailing force for local communities and peasant groups, it is produced and elaborated from the experience of grassroots groups and not only from the contributions of scientific tradition. Each knowledge has its own bias: to be constructive or destructive of peasant cultures and their agricultural knowledge. Knowledge and technology are neither neutral nor universal.

Agricultural knowledge is the basis of the survival for each group of peasants for a particular region in the Third World. The local culture - in its broadest understanding - gives the social meaning to the agricultural practice and circumscribes a particular way of understanding and dealing with reality (nature and other human beings). This is the epistemological condition for a local science more appropriate to reach the sustain ability of the local agricultural and other production systems. Therefore, empowerment means also the **autonomy and self determination** of local groups not following necessarily the development ideal of western societies, which itself is in crisis (refer to U.Nitsch verbal presentation at the conference).

Peasants all over the world have developed methods of resistance against external interests and manipulation. What for TOT-scholars remains the backwardness, ignorance and non-acceptance of peasants belonging to local groups (even agronomists neglect their different culture), is in our argument the historical need of local groups to survive maintaining their cultural identity and their type of agriculture as the only guarantee for human survival. And the extensionists can learn and develop these methods, deciding themselves on which side they stand.

Thinking in terms of an alternative extension qualitatively different than the function prescribed by the TOT model, these two conceptual and praxeological requisites are essential.

Some Lessons Derived from the Practice for Research and Extension.

In reality, fruitful elements for alternatives to monological and manipulative extension can be found in working methodologies which result from the practice of several interesting approaches (FSR, IKS, AKIS, FFL, PAR). But all of them put together do not build a coherent whole. Besides the above mentioned requisites, some insights can be gained from the critical agriculturists and social researchers who have left aside the orthodox and exclusive goal of theory making science and have turned from in order to get involved in a practice of knowledge generation as committed intellectuals with specific sectors of society organised in base groups. The process of knowledge generation which combines the experience of the organised groups and the commitment of researchers have proven research procedures which can be further developed for an alternative extension practice:

Collective research: this process takes as a point of departure the involvement of grassroots communities from the initial phase of decision and choice of the problems which will be jointly examined. Goals, methods, interests are declared and shared by peasants, researchers and extensionists. Throughout the step by step research procedures leading to results, intellectuals and farmers are interchanging and discussing, interacting dialogically. The modality of producing knowledge in a collective fashion facilitates its validation. Since researchers and people are gathering information about the concrete and familiar reality, data can be promptly verified or disregarded without sophisticated techniques, in an inter subjective exchange. A meaningful effect of collective research is that social and psychological gaps, typical in the instrumental dichotomy researcher-informant, decrease and communicative patterns of behaviour arise in a subject to subject linkage.

Recovery of history: this process is not related exclusively to events related to the social past. It can be utilised to discover the cultural meaningful elements which are hidden in the practice of agriculture. The basic values of each society/group are culturally bound in a particular region and form a part of the local human identity. Life in every community is oriented to reach (even in heaven) a cultural utopia. The only problem is that societies take for granted that these utopias are universal. So the ethnocentrism of one group clashes into conflict with other groups especially if this group is more powerful and determines processes at world level - like the western societies. Discovering and recuperating these values requires a careful and selective collection of oral traditions, crafts and other non-conventional means of expression of people's knowledge. All these are symbols of the group interest and must be correctly interpreted. It requires from everybody involved to be conscious about the relativeness of the values which underlie the actions of social groups (and even the actions of the researcher - extensionist - development worker).

Valuing popular technologies: the mobilising power of knowledge is intrinsic to the capacity of recognising essential self values. Therefore for the purposes of combining a new way of doing science with a commitment with organised local groups, research should take in account myths, stories, music, legends and other forms of expression in which technologies are conveyed. The self historical achievement of technology is one important part of the cultural identity of a peasant group and should not be neglected by outsiders but modified by the people themselves in their own logic and need. (Verhelst,1990) Even if in most peasant societies agriculture is the central human activity, also popular medicine, nutrition, crafts, housing, fishing, etc. are part of the people's science of each particular group depending on their local conditions.

There are Two Considerations about Technology:

1. **Technology always has a cultural mark** (Elzinga, 1981) and only can be transferred that meaning communicated in cultural terms. An agronomist will use his/her own cultural term which limits his/her possibility for a dialogue about practices and needs of local peasants expressed in their own cultural terms.
2. **Technology in agriculture also has its ecological constraint** or condition. The subjective ecology of peasant groups is related to concrete areas, plots or regions and corresponds to their cultural and material needs which may vary in their history. Nobody from outside can achieve a better knowledge of the local ecology, but can add only comparative knowledge for the use of the local group.

There is a generalised opinion that rituals and beliefs are not always real and based on superstitions. About this we must consider several aspects. What people do on this symbolic level is always reality for them. It is this reality that counts for any future action. In the same way as scientific knowledge is judged right or wrong by new findings, the people themselves should have the opportunity to declare and find their own truth based on their knowledge through their own action, that means their future experience. Instead of rejecting the so called superstition, we should respect the local beliefs and actions as cultural acts where knowledge is created and used.

To develop the popular technology both conditions have to be respected and constitute the point of departure for any further generation and use of agricultural knowledge. Peoples knowledge should not be collected for the agronomist laboratories which later would result in marvellous solutions (again TOT), like in the Farmers First-and-Last Model. It is the basis for the development of a more people-oriented science in local conditions and local determination, which supports values like sustain ability and diversity (heterogeneity) at a world-wide dimension.

An alternative extension theory and practice should give more priority to qualitative procedures of analysis which make possible the crystallisation and expression of knowledge generated within the framework of local peoples socio-political way of thinking.

The Role of other Knowledge Systems in an Alternative Extension.

This is the other side of the coin. Most of the valuable approaches recognise the importance of knowledge systems which are not exclusively in the inventory of the scientific tradition. Local knowledge is no longer seen as an obstacle to development or modernisation. Although the recognition of decision-making and experimentation based on local knowledge is important, it is not sufficient because it is still done within the framework of formalised science. A participatory extension requires a perspective of local, indigenous knowledge systems fully incorporated from "within", from the own actors creating knowledge systems of non-western tradition. That also means another "shift" since most farmers are already ideologized with the values of monological extension.

The Changing Role of Extensionists and Scientists

The central question for every person who wants to engage him/herself in agricultural development in the Third World (and often even in the other worlds) is: on which side is she or he? This decision is based on the clarification of the basic values underlying the interests of the external agent and of the local groups he/she wants to work with. If the external agent does not understand the needs, interests and values of particular peasants, he/she soon will fall into missionary attitudes prescribing his/her own interests and values intrinsic in his/her development ideology. Knowing both sides one can decide clearly on which side to stand.

The extensionists and scientists will fulfil a new role as catalysts of the people's knowledge, values and needs against external manipulation and exploitation. It is a new type of work to foster local autonomy and knowledge generation which requires not only the ethical and political decision in favour of the local peasants, but also new attitudes and skills relying on principles of inter cultural dialogue.

This will lead to the improvement of the experiential learning (Bawden & Macadam 1991) starting from local situations, learning the difference of individual and cultural perception, recognising the diversity of cultural ways of acting, reacting, problem solving, analysing, understanding and projecting reality. Not to forget that agriculture is only one part of the holistic understanding of most peasant societies about life and nature. Therefore agriculture has to be understood in this local but integer context.

References

BAWDEN, R.; MACADAM, R. (1991) Action researching systems extension reconstructed, in: Tillmann, 1991 p.368-386

BENVENUTI, B. (1991) Towards the formalization of professional knowledge in farming: growing problems for agricultural extension? in: Tillmann 1991 p.34-sO

CHAMBERS, R., Pacey, A., Thrupp, L.A. (ed.) (1989) Farmer First: Farmer innovation and agricultural research. IT Publications, London

DISSANAYAKE, W. (1991) Knowledge, culture and power: some theoretical issues related to the agricultural knowledge and information system framework, in Tillmann, 1991 p.72-79

ELZINGA, A.; JAMISON, A. (1981) Cultural components in the scientific attitude to nature: eastern and western modes? Research Policy Institute, Lund, Sweden

FALS BORDA, 0. (1984) Participatory Action Research, in: Development: Seeds of Change 1984:2 p. 18-20

FALS BORDA, 0. (1988) Knowledge and People's Power, Lessons with peasants in Nicaragua, Mexico and Colombia. Indian Social Institute. New Delhi

FAO (1990) Global consultation on agricultural extension. Rome

HUIZER, G. (1991) Indigenous knowledge and popular spirituality: a challenge to developmentalists, in: Tillmann, 1991 p.51-71

ISON, R.L. 1990 Teaching threatens sustainable agriculture. IIED, London

ISON; Russell, D.B. (1991) The research-development relationship in rangelands: an opportunity for contextual science. Montpellier

LONG, N. (ed.) (1989) Encounters at the interface: a perspective on social discontinuities in rural development. Wageningen

LONG, N.; Van der Ploeg, J.D. (1989) Demythologizing planned intervention: an actor perspective, in: Sociologia Ruralis Vol.XXIX - 3/4

Extension in Support of Agricultural Trade Implications for Europe 1992

David Youmans

Extension professionals enjoy a long and noble tradition in the United States. That tradition has focused characteristically on educational and/or advisory work in such areas as production agriculture, natural resource management, family life, programs for youth, and community and rural development. However, as other traditions have eroded or have been reshaped around the world in the path of globalization, thus is the Extension worker called upon to rethink approaches, re identify goals and objectives, and discover new roles in these changing and challenging times. One such role, it is suggested, is that of export trade enhancement. That role is being executed at Washington State University and its dynamics, described herein, draw centrally on the experiences of the Extension Trade Specialist at that institution.

Background

Current levels of agricultural exports from Washington are at approximately $1.3 billion dollars, contributing heavily to the state's economy and significantly to our nation's balance of trade. Among those exports are wheat, apples, beef, potatoes, hops and hay followed by barley, dry peas, lentils, mint oil, cherries, prunes/plums, grapes and onions.

The international marketing program for agricultural commodities and trade at Washington State University, otherwise known as the IMPACT Centre, was created by the state in solving problems related to export marketing of Washington products. The centre performs this charge by gathering strategic marketing information, solving technical problems, and providing product information. These functions have proved to be complementary to, rather than duplicitous of, those tasks carried out by WSDA and other state agencies, commodity commissions and providers of export services. USDA likewise supports IMPACT as an international trade development centre (ITDC) in loose association with FAS and other federal agricultural agencies.

In 1988, Cooperative Extension at WSU launched a commitment to the strategic marketing and information dissemination aspects of IMPACT in the creation and support of extension trade specialist positions. Efforts in that arena over three years have produced significant results in the areas of overseas market exploratory, fact finding, documentation and agricultural industries education programs.

Indeed, production agriculture in the U.S. needs to learn how to improve the marketability of its products in the global economy. Extension can, and in some cases does, lend critical empowerment to that task. The visually enhanced examples to follow will serve to demonstrate the point.

Meats

Beef cattle enterprises in Washington benefit from timely and reliable assessments of offshore beef markets. Export of beef and products favours the U.S. balance of trade and enhances the competitiveness and profitability of Washington agriculture. The liberalising Japanese beef market offers considerable promise for capable local producers. Interpreting the provisions and monitoring the progress of the U.S.-Japan Beef Agreement is an important Extension activity in this connection.

Field reconnaissance has been carried out among various groups, organisations and individuals in the Washington beef industry active or potentially active in export trade. Information has been shared about the Japanese beef market and the Agreement. Cooperative Extension, IMPACT, WSDA, WCA, WCFA, and WBC have all collaborated in this effort. The Extension Trade specialist, Beef Specialist, and two Extension Agents travelled to Japan in 1989 to conduct a 15 day study of the market for subsequent program delivery to clientele.

Findings contributed significantly to changes in the industry. The Extension team carried out its work in Japan with USMEF's co-ordination and support. Critical clarification's on grading, specifications, shelf life, packaging, quality, distribution and consumer habits and preferences were published in EB 1567. Seventeen Extension education programs were delivered, films made and articles written. At least three packing plants, five feeders, and a number of cattlemen made adjustments in operations accordingly. Currently, Washington Beef Inc., Iowa Beef Producers and Western Meat Producers are successfully exporting to Japan. The Japanese beef market will continue to be monitored.

Extension activities have since been expanded to include horse meat, lamb and pork; and were extended to Canada in 1990. A multi-industry survey was conducted in Alberta in October and findings are now published and are being used in Extension marketing education programs. Considerable numbers of slaughter and feeder cattle move from Alberta to Washington. Fresh chilled boxed beef moves in both directions under complex supply and demand dynamics. Washington lamb competes with Alberta product in important Canadian markets "down East". Alberta enjoys a thriving fresh pork market in Washington and both areas compete for offshore horse meat clienteles. None of this happens without a great deal of international information (and tension), and Extension has an important facilitation role to play.

WSU extension trade personnel recently completed follow up meats work in Korea, Taiwan and Japan where Washington beef, horse and lamb products are doing well but must be reassessed in light of changing trade agreements. This venture likewise provided insights into pork production and aqua culture potentially useful at home.

Pulses

The program in pulse crops is needed because exports of Washington peas and lentils contribute positively to the U.S. balance of trade and to the competitiveness and profitability of American agriculture. Washington exports are limited by competition from other counties. Extension fact finding and producer education programs on the dynamics of important offshore markets help overcome those limitations. The need for action is endorsed by the USA Dry Pea and Lentil Council.

Action on pulses centres on the Crimson (small red) lentil as an attractive alternative crop for the low rainfall Palouse region, and on understanding the world market dynamics in that connection. The Extension Trade Specialist and an Extension Agent executed a 40 day red lentil market exploratory to Algeria, Egypt, Jordan and Turkey in May and June 1990. The contacts made numbered 45. A trip report was published in the Washington Farmer-Stockman and findings are consolidated in an Extension publication. Five education deliveries were made during 1990 and two more in 1991, one in Saskatchewan.

The contribution to marketing skills in the red lentil realm is already significant but will grow dramatically next program year. The factors that make up the Turkish competition are well understood. The Egyptian market has been exhaustively visited. These findings and others are scheduled for major Extension education programs in coming months.

More traditional pulse market work was carried out in Mexico, Colombia, Peru and Venezuela in February of this year. Those Latin American countries are important importers of Washington peas and lentils. The prior twelve months export figures showed both Peru and Venezuela eclipsing major European importers, with Colombia and Mexico seen as important markets as well. Bolivia and Haiti are interesting markets which may partially fall into the food aid group.

The pulse market in the region has been steadily eroded by Canadian exports. There are a number of aspects to that story. Abundance of product, transport subsidies reflected in price, and client service have been ascribed to the Canadian success. However, another interesting factor has come to light. Washington exporters currently ship pulses to Latin America through the Port of Vancouver because those port works have the facilities for bulk loading peas and lentils, facilities reportedly not available at Washington/Oregon ports.

Washington pulse crop industries now know what in fact is happening and local commodities can partly overcome Canadian advantages by integrating into the Canadian commodity flow. Pulses crossing the border and departing Canadian ports for Latin America are Washington exports by whatever name. These and associate findings were reported at the American Dry Pea and Lentil Association meetings in March.

Hops

Hop Growers of America occupy headquarters in Yakima, Washington. Washington, Idaho and Oregon produce virtually all American hops and Washington production accounts for some 75% of a total 1990 production of nearly 57 million pounds. U.S. production is over 23% of the world total of 242.5 million pounds. Only Germany with 61 million pounds (25% of the world total) surpasses the Pacific Northwest. Washington produces both Alpha (bitter) and Aroma (mellow aromatic) hops. The trade is handled by processor/brokers, most of which are sometime German origin or current affiliation. However, since brew masters world-wide operate on their own respective tastes and quality blends, hops from all sources are brokered by the same group of firms. Broker/processors as well as hop farmers are members of Hop Growers of America.

Latin American countries which import Yakima Valley and other PNW hops included Brazil, Colombia, Peru, Mexico, and Venezuela with minor amounts destined to other countries. Brazil is the leading global importer of Washington hops currently taking over 9 million pounds annually. Cones, pellets and extract are all important in the trade.

A market reconnaissance trip in the area by the WSU Extension Trade Specialist revealed that the hop market on balance is a bright picture. Brazil, Mexico, Colombia, Peru and Venezuela are all large producers and consumers of beer. Brewers know and like Yakima Valley (and presumably other PNW) hops. They buy from the traditional (largely German) brokerage network. They know and trust firms such as Haas, Oppenheimer, Steiner, Barth and others and will continue to maintain those loyalties. While it is likely important that Latin American brew masters know about the diversity of PNW hop varieties, those brew masters, many Germans themselves, trust the brokerage network to process their needs for them.

Currently a rough estimate of Latin American hop imports might at best split the German/American ratio at 50/50. Venezuelan declines in hop imports have been related to a temporary imbalance among forward contracts, price, inventories, and production but is expected to recover.

Summary

The general task rationale described herein contemplates a new and useful role for extension personnel in the area of international agricultural trade. The complementary of such a role among official, commodity, trade and other providers of services has been corroborated. The examples of Extension's work in the meats, pulse and hop industries demonstrate the value of these endeavours. The implications of such a role for European extension workers is obvious. As European farmers are called on to implement the harmonisation regulations inherent to Europe 1992, all EC extensionists can play a timely educational role. Likewise, as the EC competes in world markets with the U.S., Canada, Australia and the strong Asian Rim counties, an extension fact-finding role may become critical.

Extension Planning and Evaluation

Strategic Planning for Extension Systems

Barbara G. Ludwig

The world is changing and so must Extension. Yet, how does an Extension system assess its role and communicate its mission to clientele, policy makers and its own staff? As European Extension educators focus on new issues, the challenge exists to re-evaluate priorities and determine the best use of such scarce resources as time, money and personnel.

There exist many barriers to change within Extension. Patrick Boyle, Chancellor, Wisconsin Cooperative Extension Service, identified the following barriers:

- Traditional clientele who have traditional expectations we have a comfortable status quo.
- Being reactive is easier than becoming proactive.
- Programs are based on traditional disciplines, rather than issues and needs; the answer sometimes precedes the question.
- Fiscal resources are assigned to staff who may have been trained to meet needs that no longer exist.
- Tried and true traditional delivery methods are employed. They will need to change to reach new and different clientele.
- Complex challenges of the future require innovation, creativity, flexibility and collaboration with new organisations and groups - all of which involves risk.

Boyle articulates the viewpoint of many Extension leaders when he indicates, "If Extension expects to be effective and relevant in the real world of the 21st century, we must be aggressive"(Boyle, 1989, p.2-3). We must make the necessary changes.

> "Public sector Extension world-wide has been criticised for not doing enough, not doing it well, and for not being relevant...It's a turning point for Extension world-wide. It's "the end of the beginning". The present represents an opportunity to take the next step. That next step involves planning for the future" (Rivera, 1990, p., 27-28)

Purpose and Overview

The purpose of the paper is to describe the strategic planning process developed and implemented in one university-based Extension system. The process and techniques employed have practical application for Extension educators in Europe seeking to conduct similar anticipatory planning. "Strategic Planning is a self-discovery process that recognises and responds to environmental pressures and opportunities within the limits of the college's resources" (Cope, 1978. p.5)

Strategic planning has become a popular concept among business, industry and educational policy leaders during the past ten years. Strategic planning focuses on identifying WHERE an organisation or educational institution should be going, separating this planning from how we accomplish or implement the plan. An important facet of the strategic process is determining who possesses the qualitative information needed and gathering it in a systematic manner. "Strategies are both plans for the future and patterns from the past" (Mintzberg, 1987, p.66-73)

Strategic planning is driven by ideas and is not limited to data gathering and report preparation. The strategic planning process looks at the organisation and environment taking into account the past, the present and what the future may bring. Strategic planning can result in innovations, but it may also reveal no particular changes are necessary and reaffirm the direction of an organisation.

Strategic planning is a process that works if used with common sense and sensitivity to the situation. It is simply a set of concepts, procedures and tools. Planners need to be very careful in how they engage in strategic planning, since all approaches are not equally useful, and since a number of conditions govern successful use of each approach (Bryson, 1988) Andrews, Lorange, Freeman, Cope, Mitroff, Pfeffer and others have developed various approaches to strategic planning which can be reviewed.

Strategic planning might be simplified into a four step process:

1) Identifying existing strengths and weaknesses within the organisation
2) Assessing external needs. Looking outside the organization at emerging needs. Utilising environmental scanning techniques to gather data. Involving leaders of target publics in identifying critical needs and problems, including insightful individuals who have little or no current connection with the Extension system in the process.
3) Proposing future programming directions Involving leaders of target publics in collaborative planning to connect organisational strengths with community needs. The goal being to recommend future directions for Extension programming.
4) Development of an organisational vision which relates strengths, needs and future directions.

The focus of the paper and presentation will be on assessing external needs and determining future programming directions. (Steps two and three noted above.) Described will be the utilisation of a community forum based on one or more public meetings to which leaders of target publics are invited: (l) to express their opinions about community problems/needs and (2) participate in determining future programming directions for Extension. Needs assessment techniques including nominal group process and focus group interviews will be described.

It is hoped the paper will stimulate thinking, discussion and further study. Results of the Needs Assessment/Strategic Planning process undertaken by the Ohio State University, Cooperative Extension Service will be addressed only briefly. **The primary purpose of the** paper is to describe the process. Summary results will be presented for the purpose of allowing European Extension educators to compare and contrast emerging issues in Europe with one mid-western state in the United States of America.

Importance in the European Context

Communities are in a continual state of change. This is true of the university community where many seminar participants work and the communities in which we all reside.

What may have once been an appropriate policy or program can soon become inappropriate. The needs of different groups in a community can be difficult to identify and are frequently interrelated. Through involvement of target populations in assessing needs, people learn more about their situation, have a voice in its outcome and are more likely to be supportive of programming and policy changes initiated.

The focus of the Tenth European Seminar on Extension Education are new and emerging issues. If Extension educators are to **effectively** help clientele deal with change, Extension must undertake anticipatory planning activities. A critical part of this process is the gathering of information about emerging needs and issues. A strategic planning process has the potential to assist European Extension educators in determining future program directions.

Identifying Existing Strengths Within the Organisation

Strategic planning begins with looking inside the organisation and determining its current reality. Questions to be answered often include:

- What is our mission statement? The fundamental purpose for our existence.
- Where have we been?
- Who are our stake holders? Who are the key people, groups and organisations effected by our organisation and effecting it.
- How do people in the organisation work with each other?
- How do people in the organisation work with those outside?
- What are our values?
- What do we perceive to be our challenges and opportunities?
- What resources: facilities, personnel, fiscal, volunteers do we possess?
- What are our strengths? What's working well?
- What are our weaknesses? What's working poorly?
- What are our performance outputs? What is the effect on clients, funders, stake holders?
- What is our vision?

This organisational assessment should help to identify the **CURRENT REALITY**. Participating in this process are: staff, clientele, and often an outside review team.

Assessing External Needs

Needs of persons or publics are accumulative effects of psychological, social, culture and physiological factors. Need can be defined as a deficiency, imbalance, lack of adjustment, or gap between the present situation and a set of societal norms believed to be more desirable. Need, then may be conceptualised as the difference between "what is" and "what ought to be"(Boone, 1988).

Needs assessment often begins with **environmental scanning techniques** to understand political, economic, social and technological forces and trends in the external environment (Brazzel, 1990). These PESTS, an acronym used by Pfeffer and Salancik, are forces to which an organisation must respond. They can be viewed as both threats and opportunities.

A researcher may utilise census data; population change; economic conditions; birth/death statistics; public assistance data; school enrolment figures; task force reports; data already collected and available from other organisations; surveys and other research techniques as part of environmental scanning. The quality of information gained is only as good as the technique(s) used to gather it. A single technique may prove restrictive. Too many methods may prove costly in time and financial resources.

"The best course of action is for each institution to identify the trends in the external environment that it believes will influence its planning" (Simerly et. al. 1987, p.8).

Ohio's Needs Assessment process involved local county Extension teams as well as a state-wide survey to gather citizen input. Demographic and Agriculture profiles were generated for each county unit by a state level resource and supplemented by data collected locally. County Extension teams utilised this information as a part of their environmental scanning process.

Involving Leaders of Target Publics

Patrick Boyle, in his address to the 1989 Symposium on Research and Extension asked the question, "Who are we listening to?"

> "We in Extension have a long tradition of basing our programs on the needs of people in fact, it's become a cliché that implies we're constantly listening to discover the real needs of people in communities.
>
> But what are we hearing? Are our clientele telling us about what's going on in the real world and how it's affecting them? If so - and if we're listening to them, then our programs should be responsive to the enormous changes taking place all around us...
>
> If our programs are not dealing with the rapid changes brought about by computers, robotics, and advanced technology, the declining natural resource base, the global economy, the growing ethnic and cultural diversity of our society -- then we're not listening very well - **or else we're not listening to a broad-cross section of people representing a wide variety of diverse interest and needs** ...
>
> We have to really listen to people -- **all the people** -- environmentalists, students, consumer groups, legislators, low income people, city people, minorities...
>
> We need new pro-active research into the best methods to scan the total environment of needs of Extension programs -- the best way is to reach and teach new clientele ..."(Boyle, 1989, p.3-4)

An important part of the environmental scanning process in Ohio was the identification of **KEY STAKE HOLDERS** that effect/or are effected by the organisation in significant ways. These included persons, groups and organisations who were Extension users and non-users. Clientele, funders, cooperators, competitors and future or potential user groups were considered.

Importance was placed on interfacing with these key stake holders to involve them in collaboratively identifying, assessing and analysing educational needs. Boone in Working With Our Public (1988) had identified that "collaborative effort is a major task" in planning to meet educational needs. Characteristics sought in stake holders identified to assist in the Needs Assessment process included:

- Centres of influence
- Civic or community leaders
- Business owners, executives, employees
- Representative of county's ethnic and racial mix
- Representative of a targeted field or business
- Individuals who live and work in different geographic areas
- Interest in education
- Verbal and articulate
- Critical thinkers
- Assertive
- High energy
- Able to function in a team setting
- Good peer relationships
- Able to give time to the needs assessment process

Ohio deliberately sought to involve non-users of Extension in helping to determine future programming directions for the organisation. Flexibility, within limits, was provided to county Extension teams in how they interfaced with target publics in the Needs Assessment process. Written guidelines were developed for utilising community forums. Orientation and training was provided to all staff at regional conferences. A resource notebook was also developed and distributed to each county Extension office. Procedures similar to the ones highlighted in the following section were frequently used.

Community Forums: Proposing Future Programming Directions

Community forums, sometimes referred to as "Speak Out" Meetings, Town Meetings or Focus Groups Interviews, were held in each of Ohio's 88 counties. These needs assessment techniques involved using a group of people purposefully invited to provide input on community issues. Community forums take little advance preparation other than inviting individuals to participate, providing a location with room for small group discussion and two hours of time (Conklin, 1990). Each county unit conducted at least one community forum during the final months of 1990 and first six months of 1991. A number held multiple meetings.

County program staff, including 4-H/Youth Agents, Home Economics Agents, Community and Natural Resource Development Agents and Agriculture Agents as well as Advisory Committee members worked as a team in providing local leadership to the needs assessment process. Participants in community forums generally included ten to fifty stake holders. These community leaders and citizens represented a variety of organisations, occupations and perspectives. Diversity was critical to generate valid information useful for planning and making decisions. As noted earlier, both users of Extension and non-users were represented.

Goals Identified for Community Forums:

1) Identify and discuss a range of issues facing communities throughout a county area.
2) Establish a list of five priority issues that citizens of the community believe Extension education should address.
3) Receive local input on four additional questions:

   - Who should be Extension's target audience in this county?
   - How can/should Extension get information to people most effectively in this county?
   - How should Extension programs be marketed in this county?
   - How can Extension improve its image in this county?

Procedures

1. Participants in advance of the meeting or during introductory comments were provided with:

   - Environmental scanning data relating to their county
   - A brief overview of current Extension programming
   - The Mission Statement for Ohio Cooperative Extension Service

2. Following introductory comments, the group was divided into smaller groups of five to ten people and a **nominal group process** used to identify, discuss and prioritised issues that can be addressed through education. The question asked at each meeting was: **"What are the problems that concern you and people like yourself in your communities, work place and families?"**

3. The smaller groups were reunited at the end of the meeting and a reporter from each group shared priorities. Similarities between group reports were noted and recorded. **The total group assisted Extension staff in establishing local educational programming priorities.** A reference more fully describing the **nominal group process** is available from the presenter.

4. As a part of the Speak Out Meetings, or at a separate meeting, **focus group interview methods** were used to gain input on questions related to: target audiences, information transmittal, Extension marketing and the image of Extension. In focus group interviews, a skilled facilitator is used to raise various issues. The goal of the group interview is to uncover information on human perceptions, feelings, options and thoughts. Analysis of gathered information attempts to discern patterns and trends that develop among participants as well as across-focus groups (Tilburg and Archer, 1987). A reference is available from the presenter.

"The visions of the public helped shape the horizons of the staff"(Anderson, 1989)

County Extension teams met following their local Needs Assessment process to summarise what was learned about external needs and future programming directions through environmental scanning, community forums, and local mail survey results. Summary information for each county was forwarded to the State Extension Office and was used to develop organisational programming goals for the future.

Development of an Organisational Vision

J. D. Thompson in his book Organisations in Action notes that a "dominant coalition" willing to sponsor the process and a "process champion" willing to push it are critical for the strategic planning process to be successful. The Extension Administrative Cabinet under the leadership of the Extension Director/Associate Dean for the College of Agriculture provides administrative direction for Extension programming in Ohio. Ohio's Extension Director took the role of "process champion" and committed fiscal resources and staff time to support the effort. All members of the Administrative Cabinet shared in providing leadership and sponsorship for the process.

While county needs assessment and a state-wide mail survey were underway, other steps were being taken to further develop an organisational vision for the future. A faculty team in the Spring of 1991, conducted an Organisational Values Audit involving over 600 Extension employees with program responsibilities. The goal was to help in clarifying the values of the organisation. A Future's Task Force, representing all staffing levels of the organisation, worked to develop and define a new mission and vision statement for the organisation. These were presented in proposal form to Extension Administrative Cabinet.

In July and August of 1991, during administrative retreats, the Administrative Cabinet of the Ohio Cooperative Extension Service met and reviewed what had been learned through the strategic planning process. Earlier studies and discussion had identified existing strengths and weaknesses within the organisation. Shared with Administrative Cabinet in July was a summary of priority issues as identified by County Extension teams and the community leaders they gathered together. Preliminary results from the values audit and the report from the Futures Task Force on a new mission and vision statement for the organisation were also reviewed as a part of the strategic planning process. Considerable discussion and debate ensued as the administrative team sought to develop a shared vision of the future.

Through the process outlined, the Cooperative Extension Service in Ohio is developing a better perception of where it should be heading. "Any strategic planning process is worthwhile only if it helps key decision makers **think and act strategically**. Strategic planning is not an end in itself, but merely a set of concepts to help leaders make important decisions and take important actions" (Bryson, 1988, p. 46).

Operating or action plans to map how Ohio is to accomplish its strategic plan are underway. The priority needs identified through the strategic planning process became the basis for: 1) development of county and state Four Year Plans of Work, 2) identification of research priorities, 3) prioritising of in-service training for Extension staff and 4) formation of action-oriented task forces. It should be remembered that THE STRATEGIC PLANNING

PROCESS FOCUSES ON IDENTIFYING WHERE AN ORGANISATION IS GOING. The four items just noted focus on **HOW** to implement the strategic plan.

> "Strategic planning becomes an on-going process as the organisation works to stay in touch with the changing environment and Extension's potential to relate its strengths to the environmental threats and opportunities presented and be responsive to critical issues of targeted clientele" (Fetsch and Bolen, 1989 p.13-15).

Reported below is the new mission and vision statement for the Ohio Cooperative Extension Service and a summary of priorities identified through county needs assessment.

> "Mission provides a sense of purpose. It clarifies an organisation's **purpose, or why** it should be doing what it does; vision clarifies **what** it should look like and **how** it should behave as it fulfils its mission" (Bryson, 1988, p. 96).

Mission:

Ohio Cooperative Extension Service, The Ohio State University, helps people improve their lives through an educational process using scientific knowledge focused on identified issues and needs.

Vision:

The Ohio State University Extension is broadly recognised throughout the state as a premiere educational network. It is a dynamic organisation strengthening individuals, families and communities in partnership with the Extension System. Extension educators:

- Concentrate on critical economic, youth/family development, and environmental issues
- Engage people in their own learning and subsequent actions
- Anticipate social and economic changes and develop programs to address emerging needs
- Apply valid and reliable research and information
- Unite and extend the broad base of university resources
- Organise and lead coalitions to maximise available resources
- Educate without discrimination and employ people representing the diversity in the state's population
- Recruit and develop volunteers to multiply Extension teaching efforts
- Link local needs with researchers
- Use appropriate and effective educational techniques and methods
- Value teamwork, and support the contribution of one another

EDUCATIONAL PROGRAMMING PRIORITIES:

Identified through the county needs association process were the following priority needs:

Economic

- Development
- Management

Environmental

- Natural Resources
- Water Quality
- Waste Management
- Energy

Family/Individual/Youth Development

- Strengthening Relationships
- Basic Living Skills
- Resource Management
- Nutrition
- Diet/Health
- Food Safety

Leadership

- Leadership Skills
- Public Policy

References

ANDERSON, C. (1989). "Scanning the environment." Journal of Extension. Fall 26-28.

ANDREWS, K. (1980).The concept of corporate strategy. Homewood, Illinois: Irwin.

ANTONSEN, J. D. (1985). "Planning when you don't have time." Exchange May, 1-4.

BOONE, Edgar J. (1988). Working with our publics - module 2: The extension education process. Raleigh: North Carolina State University.

BOYLE, P. G. (1989)."The look of extension in the future." Proceedings 1989 symposium on research in xxtension education. Columbus: The Ohio State University.

BRAZZEL, M. Presentation. "Futuring and the organizational change process." Ohio Futures Task Force, Ohio Cooperative Extension Service, The Ohio State University, 25 October, 1990.

BRYSON, J. (1988) Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement. San Francisco: Jossey Bass.

BUTLER, LM. and HOWELL, R. (1980).Coping with growth: community needs assessment techniques. Corvallis: Oregon State University.

COKE, J.C. and MOORE, C. (1991)."Guide for leaders using nominal group technique (NGT)." ms. Kent State University Academy for Contemporary Problems.

CONKLIN, N.L and The Ohio Cooperative Extension Service. (1990). New directions for programs - guide to needs assessment strategies. Columbus: The Ohio State University.

COPE, R. G. (1987). Opportunity for strength: strategic planning clarified with case examples. ASHE-ERIC Higher Education Report No. 9j. Washington, D.C.: Association for the Study of Higher Education.

COPE R. G. (1978). Strategic policy planning: A guide for college and university administrators. Englewood, Colorado: Ireland Corporation.

CHRISTENSEN, K.S. (1985). "Coping with uncertainty in planning." Journal of the American Planning Association. 51., 63-73.

DELBECQ, A.L., VAN DE VEN, A.H. and GUSTAFSON, D.H. (1975). Group techniques for program planning: A guide to nominal group and delphi techniques. Glenview, IL: Scott, Foresman and Company.

FETSCH, R. and BOLEN, K. (1989). "Successful strategic planning." Journal of Extension. Winter.,13-15.

FREEMAN, R.E. (1984). Strategic management: A stateholder approach. Boston: Pitman..

GIBBONS, G. (1991). "What is NGT?" ms. The Ohio State University.

MITROFF, I. (1978). "Systemic problem solving." Leadership: Where else can we go? N.C.: Duke University Press.

MINTZBERG, H. (1987). "Crafting Strategy." *Harvard Business* Review July-August, 66-73.

PFEFFER, J. and SALANCIK, G.R. (1978). The extenal control of organizations: A resource dependence perspective. New York: Harper & Rowe.

RIVERA, W. (1990). "Future of extension worldwide." Journal of Extension. Fall, 27-28.

SAFRIT, R.D., CONKLIN, N.L., and JONES, J.M. (1991). Organizational values of the Ohio Cooperative Extension Service. Unpublished raw data.

SIMERLY, R.G., and Associates. (1987). Strategic planning and leadership in continuing education. San Francisco: Jossey-Bass.

THOMPSON, J.D. (1967). Organizations in action. New York: McGraw Hill.

VAN TILBURG, E. and ARCHER, T. (1987). Edge: Focus group interview. Columbus: Ohio Cooperative Extension Service, The Ohio State University.

Developing, Conducting, and Evaluating a Training Program for Professional Extension Educators at the American Farm School, Thessaloniki, Greece

John R. Crunkilton

The basis for this paper is a program sponsored by the American Farm School located in Thessaloniki, Greece. The Farm School was started in 1905 as a boarding school for orphan boys. Starting with 12 boys, the School has grown to about 270 students (boys and girls) living on campus. The School's educational program consists of both academic and vocational courses, complemented by a very organised practical program where each student is required to spend several hours each week in a hands-on learning experience situation. The Farm School has developed a reputation over the years for a high quality educational program to the point that many visitors come to the School each year to observe their programs. As you might expect, many of those visitors were from countries who have similar programs, goals, expected outcomes, and wanted to gain new ideas and competencies so they could carry out their educational programs in their home countries in a more effective manner. While the Farm School is a secondary school, many of their visitors were individuals who had extension related responsibilities in their home countries located on a university campus, or working in extension through the Ministry of Agriculture.

With the long standing Farm School experience, outside interest expressed by extension educators in the program, and the missionary zeal of the Farm School staff and administrators to help others improve their educational programs, a seminar designed for professionals involved in agriculture in developing countries was initiated focusing upon the methods and management of practical training programs.

The overall purpose of my presentation is to blend some of the basics of sound program planning of educational programs as applied to extension education with the practical application of these to a real program for extension leaders from developing countries. While not all of what the Farm School has done will apply to each of you, hopefully there will be ideas you can use in your own situation.

The outline of this paper will fall basically into three areas: that is developing a program; conducting a program; and evaluating a program. I'll also supplement my comments with slides illustrating points important to this topic. The paper will close with a checklist of the critical elements for conducting such a program as described.

Developing the Program

One of the basic tenets that we have all agreed upon in extension is that a program must be based upon the needs of the target group. Second, the experience planned for the participants should enable them to be more self reliant in their jobs or private lives as they return home. And third, any program considered should seek the active assistance and input from those for whom the program is being designed. From the very beginning, the Farm School followed these basic tenets. In June 1987, the Farm School invited 7 educational/extension leaders representing different countries to the Farm School to seek their input into the development of such a seminar. The participants were given the opportunity to become familiar with the School's program, capabilities and limitations. Furthermore, each of these professionals were asked to be reflective on the needs of professionals who they supervise or of those who are working directly with farmers or youth. While a very tentative program was planned for this initial group, the mode of operation was to seek their input into proposed program goals content, content delivery, expected outcomes, and evaluation. Based upon this initial group meeting, the following served to bring the program into reality .

Who May Attend. The seminar was designed for professionals involved in instructional programs in agriculture in developing countries, specifically agricultural teachers, agricultural extension personnel and officers, and persons working in agricultural/rural development programs.

Seminar Purpose. The purpose of this intensive practical three week seminar was to provide agricultural leaders (men and women) from developing countries the opportunity to further develop their professional skills in planning for and conducting educational programs for young people and adults. Special emphasis was placed upon techniques for including practical skill development and management training as a part of the participant's educational programs in agriculture. The seminar objectives were to be accomplished by using the experience and resources of the Thessaloniki International Training Program (TITP) and the experiences of the participants to generate ideas for adaptation in developing countries.

Program Outline. The seminar content basically centred around seven areas. These were: (annex 1)

Seminar Outcomes. Participants will leave the seminar with:
(annex 2)

Conducting the Program. With this background information, let me share some slides with you regarding the program that has developed over four years. (annex 3) To date, the four programs completed have included 64 participants from 18 countries, all from Africa with two exceptions, Bulgaria and Mexico. Professionals involved the heaviest interests and have been university teachers and administrators, extension level leaders in Ministries of Agriculture, and agricultural advisors representing non-governmental agencies. The second phase of this paper deals with conducting this program. This can best be illustrated through slides. (Slide description)

1. Slide-Map of Africa showing countries sending participants. To date, 64 participants from 18 countries have attended. The greatest number has been from Malawi.
2. Slide-Mr. George Draper, Director of the American Farm School.
3. Slide-Orientation includes a guided tour of the School, helping the TITP participants to become familiar with the School's layout and physical facilities.

4. Slide-Program format includes lecture/discussion classroom settings in the School's
5. Slide-Presentation includes myself, Dr. Jim Clouse, Professor Emeritus of Agricultural Education at Virginia Tech.
6. Slide-Farm School Teachers and Administrators as illustrated here. TITP participants are often called on to assist instructors, thus, an active, hands-on-experience.
7. Slide-Professors from near by 2 and 4 years universities are also used, thus capturing the expertise of local resources.
8. Slide-All sessions are video taped. These tapes are useful for late arriving participants to catch up to date and for the following year presenters to critique for improving their teaching skills.
9. Slide-Participants are taken on campus tours to get a first hand view of practical programs available to students. For example. the poultry tour begins with caring for chicks from hatching to
10. Slide-Slaughtering to
11. Slide-Processing.
12. Slide-Another popular topic has been "Alternative Energy." Here participants are constructing a solar heat reflector or
13. Slide-Actually frying eggs with solar reflection.
14. Slide-A new topic in Agricultural Mechanics this year focused upon drip irrigation. Different materials were used for the system as showed here and students were checking the drip rate.
15. Slide-Preparing a seedbed for fumigation was a topic in the horticultural department. Participants learned how to operate small power equipment as well as hand tools to prepare soil for application of chemicals.
16. Slide-Another topic in Agricultural Mechanics was painting and preserving wood.
17. Slide-A tour to the piggery demonstrated use of farrowing crates designed to keep the sow from laying on new born pigs.
18. Slide-Tractor driving was popular, especially with the women.
19. Slide-Trimming hooves of dairy animals was of interest to some TITP participants.
20. Slide-Field trips helped the participants to become familiar with Greece outside the Farm School. One of the first trips was to the city of Thessaloniki and the historic castle.
21. Slide-Field trips also included those to practising farmers. A greenhouse for growing roses was of special interest.
22. Slide-A small local shop that builds farm equipment gave participants the idea that a business could be profitable on a small scale within a local community.
23. Slide-Meeting the local extension agents and community leader were always popular.
24. Slide-Note taking was encouraged so participants could later refer to their ideas gained while on field trips. In fact, small, pocket size notebooks were distributed and were very popular.
25. Slide-Special sheets were provided for the participants to summarise their ideas at the end of each day.

26. Slide-Instructional aids used by Farm School teachers were of special interest to seminar participants, especially those aids which were low cost to build, like this display of seed samples.

27. Slide-Given basic instruction in how to teach and several practical skills, participants were then asked to teach a 15 minute lesson. Thus, lesson planning was a necessity for each participant.

28. Slide-Participants selected the topic they wanted to teach, then taught it to their fellow seminar colleagues.

29. Slide-All presentations were video taped and latter critiqued first by the individual through a self critique process, then by his/her own students, and last by the seminar teachers.

30. Slide-Each participant was also required to develop a Plan of Action to implement upon their return to his/her home country. First, in small groups TITP participants shared and consolidated all they have seen, observed, or practised in the first two weeks of the seminar. The goal was to brainstorm and develop a list of ideas that might apply back in their home country to improve agricultural education or agriculture in general.

31. Slide-Once these ideas were identified on poster paper, they were posted around the library for all to see

32. Slide-and study.

33. Slide-Then each participant had to develop his/her own Plan of Action which included objectives, expected outcomes budget, steps to follow, evaluation, and people who would need to be involved for the plan to be put in action,

34. Slide-which was presented and shared verbally and in writing with other participants. Thus each participant not only took his/her plan home, but a copy of all the other plans developed.

35. Slide-Not all time at the seminar was devoted to work. Each country represented presented a 30 minute program on their home country, covering such things as geography, educational system, agricultural economy, and trends and issues in agricultural/extension education.

36. Slide-Participants were housed on the Farm School Campus in the Adult Learning Centre, which had lodging rooms and a TV lounge.

37. Slide-Recreation consisted of special invitations to homes of teachers and administration living at the Farm School for dinner and

38. Slide-dancing.

39. Slide-Meals were served in the Farm School Cafeteria.

40. Slide-A high interest was exhibited during the International Meal, a time when participants volunteered to cook favourite dishes of their home country,

41. Slide-then participants labelled their dishes and invited Farm School staff and teachers to join them.

42. Slide- Refreshment breaks were common and important to retain a high energy level.

43. Slide-At the closing graduation ceremony, each participant received a signed certificate from the Farm School Director.

44. Slide-Overall co-ordination of the seminar ran smoothly by laying out each day's handouts on a table with days of the week identified

45. Slide-and a posting of the entire seminar program which seminar coordinators and seminar teachers could see at a glance for last minute changes and the day's activities.

Evaluating the Program. The third phase of this paper deals with evaluation and program evaluation should be an integral part of any extension program and for TITP, it has been no different. Evaluation has consisted of the following:

- Daily seminar leaders evaluation: at the end of each day of the seminar, coordinators were asked to complete a form identifying the strong and weak points of the day's program. (annex 4)

- Instruction evaluation: each of the program presenters were asked to evaluate their presentation and what suggestions they would make if they were to present the same topic. (annex 5)

- Program Participants' Evaluation in Two Parts: The Seminar itself was divided into 5 sections. At the end of each section, participants were asked to evaluate the session objectives and how well they were met and each of the program topics, and open ended questions were asked to solicit their views of the strengths of the program and what suggestions they would make to improve the program. (annex 6)

The second part of the evaluation came at the end of the seminar where each participant has the opportunity to evaluate the overall co-ordination of the seminar, including housing, food, etc. (annex 7)

- A follow-up of former TITP participants has been made including a mailed survey to each participant and personal visits to several alumni.

While time does not permit a total recap of what we have learned from the evaluation, let me take a few minutes to share with you the participants' reaction to what they viewed important program topics. Of the 22 highest valued topics included in all four seminars, 11 could be related to what we call process (how we might do our jobs and do them better), six related to theory/concepts of carrying out professional agricultural education/extension duties, and five related to the teaching/learning process. (annex 8)

In closing, several lessons can be gained from the program and the Farm School experience. First, the program has served a need for professional educators and extension personnel from developing countries. Second, Greece is an excellent country in which to conduct such a program because program participants are exposed to agricultural practices they see as possible to achieve as contrast to a program held in a highly technological society or country. Third, Greece is much closer to Africa, thus cutting down on travel time. Fourth, Greece is a member of the European Economic Community and thus, has special ties and similar situations as Europe. And fifth, recent interest expressed by Albania and Bulgaria indicates that such a program just described could either be replicated or modified for enhancing professional agricultural education programs in Eastern European countries. A recent visit to the Farm School by agricultural leaders from Bulgaria and a visit to Bulgaria by the director of the Farm School and myself verified that such a seminar could prove to be the initiative to start a reform movement in agricultural and extension education in Eastern European countries. In closing and based upon the experiences of the Farm School in conducting a program for agricultural education and extension educators in developing countries, the following statements reflect important elements that must be in place if a program similar to the one just described is going to be successful (annex 9).

Annex 1.

SEMINAR OUTLINE

1. Introduction and Orientation

2. The American Farm School

3. The Teaching/Learning Process

4. Practical Skill Development

5. Greece and Rural Development

6. Application of Ideas Generated

7. Field Trips

Expected Seminar Outcomes

- Ideas for application in their jobs
- An individual plan of action for guiding his/her activities for the year ahead
- Increased awareness of teaching techniques and characteristics of effective teachers/agents
- Increased awareness of lessons learned in agricultural training from other developing countries through dialogue with other participants
- Understanding of the Farm School as an educational model
- Ideas for practical, hands-on educational experience
- Approaches to rural development
- Understanding of Greek culture, customs, and agriculture Renewed professional spirit
- Professional friends from other countries

Annex 3.

Table 10: Participants by Country and Year Attending the 1988, 1989, 1990, and 1991 Seminars

			Year		
Country	1988	1989	1990	1991	Total
Botswana					
Bulgaria	-	-	2	-	2
Egypt	2	1	-	-	3
Ethiopia	-	2	1	-	3
Kenya	-	-	2	-	2
Lesotho	4	2	1	-	7
Malawi	3	4	5	2	14
Mali	1	-	-	-	1
Mexico	-	1	-	-	1
Nigeria	4	-	2	2	8
Sierra Leone	-	-	1	-	1
Sudan	-	2	3	1	6
Swaziland	-	1	1	-	2
Tanzania	3	1	-	-	4
Togo	1	-	-	-	1
Uganda	-	2	-	1	3
Yemen Arab Republic	1	-	-	-	1
Zimbabwe	-	1	1	2	4
Total	**19**	**17**	**20**	**8**	**64**

Annex 4.

TITP Evaluation

Form - *Seminar Lead Team**

Methods and Management of Practical Training Seminar

Person Completing form: ______________________ Date: ______

The seminar team should individually seek answers to the following questions at the end of each day's activities and leave this form at the TITP headquarters room.

1. What aspects of today's program went exceptionally well?
2. What aspects of today's program could stand to be improved?
3. What unexpected problems surfaced during the day?
4. What possible solutions could help solve these problems?
5. What activities occur tomorrow?
6. What must we do to prepare for tomorrow's activities?
7. Is there anything else we may have forgotten?

---

* To be completed by the Seminar Team at the end of each day.

Annex 5.

TITP Evaluation

Form-*Seminar Instructor*

Methods and Management of Practical Training Seminar

Date:________

Name: ____________________________

Title of prensentation:____________________________________

Please answer the following questions by circling the appropriate number that agrees with your feelings.

		Great Extent	*Some Extent*	*Little Extent*	*No Extent*
a.	To what extent do you feel the objectives for your presentation were appropriate?	1	2	3	4
b.	To what extent do you feel the objectives for your presentation were met?	1	2	3	4
c.	To what extent were you satisfied with your teaching (presentation)?	1	2	3	4
d.	To what extent did the seminar participants comprehend the materials or information in your presentation?	1	2	3	4
e.	After reflecting on the information in your presentation and a better understanding on who the seminar participants were, to what extent do you feel the material (information) you shared with them was appropriate?	1	2	3	4

2. As an overall reaction, what did you like about your part on the program?

3. As an overall reaction, what did you not like about your part on the program?

4. If you had to do this presentation over again, what would you do differently?

5. What suggestions would you like to make if this seminar were to be held again in the future and you were asked to make the same presentation?

Methods and Management of Practical Training Seminar

1. Please answer the following questions by circling the appropriate number that agrees with your feelings

		Great Extent	*Some Extent*	*Little Extent*	*No Extent*
a.	To what extent do you feel the section objectives were appropriate?	1	2	3	4
b.	To what extent do you feel the section objectives were met?	1	2	3	4
c.	To what extent did you enjoy the learning experiences in this section?	1	2	3	4
d.	To what extent did instructional aids help in the presentations?	1	2	3	4
e.	To what extent can you take the information presented and apply it to your own situation?	1	2	3	4

2. Rate the usefulness of the following activities and presentations in this section of the program.

Scale: 1=very valuable 2=somewhat valuable 3=neutral value 4=not valuable

a.	Adaptation of Greek/AFS practices to developing countries	1	2	3	4
b.	Identifying list possibilities of ideas for the home countries	1	2	3	4
c.	Developing individual plans of action	1	2	3	4
d.	HELINAS presentation	1	2	3	4
e.	Visits to teachers/administrators	1	2	3	4
f.	Participant sharing of plans	1	2	3	4

3. What did you like best about this section? List below 2-3 things that you like best.

4. What areas in this section need improvement? List up to 2-3 things you feel need improvement.

5. Please add any additional ideas that you might have for this part of the seminar program.

Annex 7.

TITP Evaluation

Form - *Overall Participant Reaction*

Methods and Management of Practical Training Seminar

A. Circle the letter which corresponds with your feeling in regard to each statement.

Scale: 1=excellent; 2=good , 3=fair 4=poor; 5=does not apply

1.	Quality of lodging	1	2	3	4	5
2.	Quality of food	1	2	3	4	5
3.	Hospitality of the American Farm School	1	2	3	4	5
4 .	Handling of any international travel arrangements by the American Farm School	1	2	3	4	5
5.	Meeting facilities	1	2	3	4	5
6.	English language capability of presenters	1	2	3	4	5
7.	Co-ordination of overall activities	1	2	3	4	5
8.	Recreational/social activities	1	2	3	4	5
9.	Programs by participants on home countries	1	2	3	4	5

B. Additional reactions. Please respond as requested, one **X** per statement.

I. The seminar was: too long____ ; just right _____; too short____.

2. The ratio of work to free time? too much work time_____; just right_____; too much free time_____.

3. Did you receive sufficient advanced information about the seminar-? Yes____No_____

4. Did the seminar run smoothly? Yes_____No______

5. Would you recommend this seminar to a colleague? Yes_____No______

Annex 8.

Table 6:1988, 1989, 1990, and 1991 Seminar Program Topics Ranked According to Mean Values

Program Topic	Means* by Seminar Year				
	1988	1989	1990	1991	Mean
Non-formal education	---	---	---	1.14	1.14
Identification of Training Needs	1.25	1.14	1.22	1.00	1 .15
Opening Session	1.20	1.18	1.21	1.17	1.19
Demonstration	1.26	1.07	1.27	1.25	1.21
Questioning	1.21	1.33	1.20	1.13	1.22
Factors of the teaching/ learning process	1.11	1 .29	1.40	1.13	1.23
Training the master farmer	1.19	1.25	1.29	---	1.24
Practical Programs in poultry	---	---	---	1.25	1.25
Practical skill refinement	1.26	1.33	1.19	1.25	1.26
Developing a plan of action	1.22	1.35	1.37	1.14	1.27
Teaching/learning process applied to adults	1.19	1.40	1.60	1.00	1.30
Tour of AFS	1.31	---	---	---	1.31
Critiquing of teaching	1.58	1.56	1.16	1.00	1.33
History of Greece	---	---	---	1.33	1.33
Identifying ideas for home countries	1.61	1.41	1.37	1.00	1.35
Lesson planning/problem solving	1.37	1.57	1.19	1.25	1.35
Orientation to Thessaloniki	---	1.36	---	---	1.36
Audio-visual instruction	1.21	1.75	1.13	1.38	1.37
Basic Greek language	---	1.50	1.43	1.17	1.37

Annex 6. (con´t.)

Table 6: (continued)

Program Topic	**Means* by Seminar Year**				
	1988	**1989**	**1990**	**1991**	**Mean**
Experiment	---	1.53	1.20	1.38	1.37
Problems in managing practical programs	1.38	—	---	---	1.38
Individual work on lesson planning	1.26	1.47	1.44	1.38	1.39
Student evaluation	1.39	1.46	1.31	1.39	1.39
Visits to teachers/administrators	1.50	1.63	1.32	1.14	1.40
Instructor/agent evaluation	1.33	1.54	1.31	1.50	1.42
Teaching/learning process applied to youth	1.29	1.60	1.53	1.29	1.43
Alternative energy	---	---	1.63	1.25	1.44
How a farm school works	1.69	1.20	---	1.43	1.44
Appropriate technology	---	---	1.75	1.14	1.45
Barbecue/outdoor activities	---	1.86	1.53	1.00	1.46
Sharing plans of action	1.59	1.53	1.47	1.29	1.47
Practical programs in animal science	1.54	1.63	1.47	1.29	1.48
Specific application of skills	1.38	1.63	1.32	1.57	1.48
Challenges and opportunities in home countries	---	1.33	1.64	---	1.49
Field trips to local farms	2.06	1.46	1.43	1.00	1.49
Adaptation of Greek/AFS practices to home countries	1.61	1.59	1.37	1.43	1.50
Culture of Greece	---	---	---	1.50	1.50
People of Greece	---	---	---	1. 50	1.50
International meal	---	1.73	1.44	1.38	1.52

Annex 8.(con´t.)

Table 6: (continued)

Program Topic	**Means* by Seminar Year**				
	1988	**1989**	**1990**	**1991**	**Mean**
Supervised study	1.53	---	---	---	1.53
AFS practical programs	---	1.50	1.87	1.29	1.55
Orientation to Greece	1.56	1.45	1.64	---	1.55
Practical programs in horticulture	1.76	1.47	1.80	1.17	1.55
Role playing	1.78	1.60	1.20	1.63	1.55
Group discussion-Section I	---	---	---	1.57	1.57
AFS farming programs	1.69	2.08	1.64	1.00	1.60
AFS educational programs	1.81	1.62	1.57	1.43	1.61
Two-day field trip away from AFS	1.72	1.35	1.26	2.14	1.62
Agriculture in Greece	2.00	---	1.60	1.29	1.63
Tour of Thessoloniki	2.06	1.55	1.43	1.50	1.64
Field trip to agribusiness's	1.38	2.19	1.58	1.57	1.68
Practical programs in agricultural mechanics	2.06	1.71	1.75	1.25	1.69
Sharing of opportunities at home	---	---	1.69	---	1.69
Agricultural development	1.46	1.47	2.26	1.71	1.73
People and culture of Greece	2.38	1.23	1.61	---	1.74
Trends and issues Greek Agricultural Extension	---	---	---	1.75	1.75
Recreation and social planning	1.94	1.85	1.71	1.71	1.80
KEGE	---	---	1.64	2.14	1.89
Greek extension programs	---	1.79	1.56	2.43	1.93
Role of women	---	1.86	1.81	2.25	1.97

Annex 8. (con´t.)

Table 6: (continued)

Program Topic	Means* by Seminar Year 1988	1989	1990	1991	Mean
Community development	2.44	1.73	---	---	2.09
Rural research	---	---	2.11	---	2.11
Tour of university farm	---	2.13	---	---	2.13
Agricultural education relations	2.38	---	---	---	2.38
Sports	---	2.43	---	---	2.43
AFS health care	---	---	3.00	---	3.00

***Scale: (1) = very valuable, (2) = somewhat valuable, (3) = of neutral value, (4) = not valuable**

Annex 9

Critical Elements of a Program Designed for the Professional Enhancement of Agricultural Education and Extension Education in Developing Countries

1. Proposed program falls within the mission of the institution.

2. Institution, administrators, and staff are committed to the program.

3. Financial, physical, and human resources are available to offer the program and not at the expense of on-going programs/commitments.

4. Publicity for program needs to be planned carefully to reach intended audience for recruitment and selection of appropriate participants.

5. Program structure and content are built upon the input of participants and their supervisors for whom the program is designed.

6. Program content is relevant and provision made for hands-on experiences.

7. Flexibility is built into program to handle unexpected problems.

8. Cost of program to participants is competitive with similar programs offered by other institutions.

9. Participants leave program with not only ideas in their minds, but also with materials, handouts, guides, etc., that can be applied back home.

10. Evaluation is on-going throughout the seminar and at the close.

11. Program participants receive a graduation certificate upon completion of program.

Farmers' Training in Portugal: A Contribution to its Evaluation

Artur Cristóvão and Eduardo Figueira

This paper presents a summary of a report on the evaluation study of Farmers' Training activities developed by the Agriculture Ministry between 1977 and 1986, as part of a Regional Agrarian Development Programme funded by EEC. The study was an initiative of the Agriculture Ministry, Directorate of Planning and Agriculture, which also provided the necessary funds. The evaluation was conducted by a team of faculty and students from the Universities of Évora and Trás-os-Montes e Alto Douro, according to a set of guidelines agreed with the Ministry.

The paper describes the study, presenting the evaluation model and methodology, discusses some of the study's limitations, summarises the results and, finally, raises a number of issues and ideas for reflection.

Evaluation Model and Methodology

The evaluation model was based on the framework defined by Bennett (1979) to analyse the impact of extension programmes. According to this author, we can consider a hierarchy of impact levels, to which corresponds a hierarchy of evidence. This last one includes, namely, the following aspects or levels: (l) input (budget, human resources); (2) activities; (3) contact or participation; (4) reactions; (5) changes in knowledge, attitudes, skills and aspirations; (6) changes in practices; and (7) final results.

In this study, and given that the major objective was to describe the results of training, we took as evaluation parameters three levels of Bennett's hierarchy: **contact or participation** (level 3); **reactions** (level 4); and **results** (levels 5,6 and 7). In general terms, **participation** was defined as the set of means of interventions of the trainees in the training process, **reactions** were defined as the participant's ways of seeing and feeling the training context, process and results, and **results** were defined as the set of training impacts, as seen by the participants, with emphasis on such aspects as changes in knowledge and knowledge use, among others.

The model was applied using a **survey approach,** based on interviews to different actors, the trainees in particular. Through these interviews, these actors were asked to offer **perceptual data** related to the three mentioned parameters.

By **perceptual data** we mean perceptions, opinions, and ways of seeing and feeling. Forest and Marshall (1978), describing the methodology used in an important impact study of extension in a US county, present a set of reasons in favour of these type of data, including: (l) the fact that they are easier to collect than "hard evidence"; (2) the fact that extension programmes depend more on perceived value to participants than on actual value; (3) the fact that perceptual data are less costly both in economic terms and in irritation to respondents; (4) the fact that they are more easily understood by users; and (5) that fact that they allow respondents to review their experience retrospectively. This position is supported by Steele (1978).

The study involved the whole country, with the exception of the Azores and Madeira Islands, and the **Agrarian Region was the basic unit of analysis.** In fact, each of the seven Agrarian Regions built a training structure, with its own characteristics and particularities.

The data collection was done through interviews. Using Patton's (1982) terminology, two types of interviews were used: closed quantitative and open standardised. The first type was used with training participants, and the results are summarised in this paper. This type of interview, applied to a large number of people, allows a simpler and faster data analysis and comparison.

A **random sample** of participants was drawn from each region. **Sample stratification** was done according to type of training course; Specialised Short Course, (SC), Agricultural Mechanisation Course, (AM), and Agricultural Entrepreneur Course, (AE) and year of training (five periods of two years were considered). Three different instruments were used, that is, interview guides for trainees, instructors and coordinators. The instruments were pre-tested and showed a good internal consistency. The instrument for trainees included five major chapters: (l) trainees' characteristics; (2) participation; (3) reactions; (4) results; and (5) global evaluation. Field work developed in a period of eight months, required about 24.000 km of driving and visits to most counties of the country and many of its villages.

The data was organised in seven regional files and a global file, and subject to a descriptive analysis, based on frequencies and percentages. **Comparisons** were done among regions, type of course and years of course, as well as considering trainees characteristics, such as age, sex, schooling and farming experience. In these comparisons the chi-square statistical test was used with a confidence interval of 95%. For most questions N = 566.

Study Limitations

Every study has weak points and limitations and their analysis provides useful hints for similar endeavours. In this case, we identified several limitations, namely those related to the evaluation mode and the methodology.

In the **first** place, it is important to emphasise that studies of this nature shouldn't involve such long periods. In fact, 10 years is a long time. Whoever participated in a course 10, 9, 8 or 7 years after, even less, might not remember easily the content, quality of instruction, changes in knowledge or application of new knowledge. In summary, an according to this experience and similar studies, the evaluation should have, as a time frame, a period between two and five years. We can conclude, then, that other evaluations should have been done before this one.

Secondly, we must refer to the limitations related to the survey approach. In fact, survey research does not favour depth. At the same time, the use of quantitative closed interviews presents several inconveniences, including the imposition of response categories, sometimes distorting the answers and their real meaning.

Thirdly, we have the limitations related to the sampling procedure. It is known that every sampling study is subject to errors. In this case a compromise approach was followed, in accordance with the available resources. There is no doubt that a larger sample would have been preferable and an alternative sampling process could have also been devised.

Fourthly, some limitations are also due to the instrument, especially the one used to interview the trainees. In fact, the use of non-standardised instruments generates problems related to validity and reliability.

Finally, in the fifth place, the lack of baseline information should also be taken into consideration in this case. In truth, important data about the training activities in some regions was missing. None of the seven regions had data on the training courses which took place in 1977, including participants' names. This was due to the absence of a monitoring system and the consequent in existence of organised files with easy and fast access and retrieval. In one case we had to skim piles of documents, stocked in an *ad hoc* fashion, in order to find the necessary information.

Summary of Results

First of all, the evolutionary change in the type of farmers involved in training courses must be stressed. It is noticeable that there is an increasing participation of younger and more educated people, and also the gradual increase of women's presence.

The participation of young farmers is, no doubt, the result of several incentives, including the installation of subsidies and other support mechanisms, in articulation with training. Concerning **participation** in the overall training process, it should be noted the low number of class participatory methods identified by participants, which may reveal an approach centred on the instructor and based on lecturing. On the other side, there are also limitations concerning the evaluation of courses and instructors, symptomatic of a training process which does not challenge the trainees to get actively involved. In any case, and in regard to these two last aspects, there is no doubt that progress occurred during the 10 year evaluation period, as revealed by the comparison among years.

In general, participants' satisfaction with the training programmes is high, being important the fact that 91% of the respondents recommended the course to others. However, the majority consider it necessary to change the curriculum, namely in the theory/practical relationship and balance, particularly in the case of the Agricultural Entrepreneurs' Courses - the need for practical work opportunities.

The recruitment of young instructors, recently graduated from higher education institutions, and less capable of developing the practical aspects of instruction, is related to this fact. It can also be correlated the dissatisfaction with the course themes as presented, which, although not statistically significant, is noticeable.

In respect to the types of course, AM is the one which presents a higher rate of satisfaction, in global terms. This can be the result of the following circumstances:

(l) First of all, these courses have precise objectives, leading the participant to acquire the necessary skills, as well as the official driving permit, to drive a tractor. The participants know well the objectives and can easily evaluate the results. On the contrary, the AE courses have wide and vague objectives and a very diversified content, and participation does not necessarily reach the same sense of "accomplishment";

(2) Secondly, we can not ignore that the FM courses involve older people, with less schooling. In fact, these are the ones who better rate the courses, and are less educated than those who show higher satisfaction with the way the themes are presented, as well as with the results.

Concerning the **results,** it is globally recognised that the courses increased knowledge and that, in terms of learning, the expectations were over and above those expected. However, concerning knowledge utilisation, there is a noticeable number of respondents who mention a low or non-use. This situation suggests the need for reflection on the course curriculum and its appropriateness.

At the same time, about a quarter of the respondents show difficulty in using the information and new knowledge. It may not be alien to this fact the lack of extension teams operating in the field, supporting farmers in the application of new techniques and practices.

In relation to the different types of courses, the AE with a more complex and diversified curriculum, is the one which presents higher rates of difficulty in knowledge utilisation and frustration concerning the learning expectations. This seems to point towards the necessity of a careful analysis of the training programmes, and also to the assessment of participants expectations in respect to this type of course. On the other side, the AE courses register a high rate of success in regard to participants' involvement in group and community activities (co-operatives and associations) after training. In fact, the promotion of this idea is part of most courses' philosophy, being one of its major objectives and discussed themes.

Still in the chapter of results, it is observed an increasing percentage of respondents who say they learned less than expected. This aspect can be linked with others previously referred, including the increasing desire for more practical content and approaches and the decreasing satisfaction with the way the themes are presented.

Finally, a note on the **global evaluation.** First of all, there are significant differences among regions, types of courses and year of training concerning the global classification of the training programme by each participant. Overall, the classification is quite positive. AM courses emerge as the better classified. In respect to the variable related to the year of training, it must be underlined that the students overall classification of the courses over time tend to decrease. This can be interpreted as a back up for improving training quality.

Final Reflections

The results of the study offer many issues and ideas for reflection, which we summarised in six major points: (1) the participants; (2) the instructors; (3) the pedagogical process; (4) the training content and its usefulness; (5) training and agricultural development; and (6) monitoring and evaluation of training.

The participants

Various questions can be raised about the participants, all of them related to a major question: training for whom? To answer this question we must not forget that agricultural training is part of farmers' lifelong learning process, important for everyone, young and old. In this sense it is important to reflect about the need for **initial or basic training,** for those who start a professional farming activity, and for **continuing training,** for those who wish to have opportunities to renew the knowledge stock or learn new things.

On the other side of the coin, there is a need for reflection on women's involvement in training. If it is true that the rate of women's participation is increasing, it is also true that it is still very low considering the role of women in agriculture. The challenge remains for national and regional training leaders - what kind of strategies to use in order to increase women's participation in agricultural training programmes?

The instructors

The study results lead us to raise some questions about the instructors or trainers. For instance: what should be their role? What kind of training should they have? What kind of characteristic should they have?

In our vision the trainer is not simply a specialist in a certain technical domain. He or she should also be a pedagogical animator and a knowledgeable person on the environment in which the trainees live and work. He or she should not be a simple "seller" of knowledge or "bits and pieces" of information, but especially someone with a true capacity for dialogue with the trainees, someone able to take advantage of a situation in which different knowledge, skills and experiences interact.

In this perspective, the training of trainers - pedagogical, practical and theoretical acquires major relevance. The young trainers, namely, should have the opportunity to enlarge and enrich their knowledge base through the interaction, in the field, with farmers and farmers' organisations.

The pedagogical process

In this area, we think that a major issue is the relationship to theory-practice in the curriculum, that is, how to establish a good balance and integration between the theoretical and the practical components of the training programmes.

This balance and integration requires different measures. Those measures may have to do with the selection and preparation of instructors, as well as with the use of adequate teaching-learning strategies, methods and techniques, including case studies, farm visits and internships, and the incorporation of the participants' experience in the training act.

In general, we argue that it is important for the trainee to be confronted with diverse real situations, in relation to which he or she can reflect, discuss, mobilise knowledge and skills, and act. This might be particularly relevant in the case of **initial or basic training.**

Training content and its usefulness

The content of training is a key element and the question of its usefulness is critical when we think of training as an instrument of change and development. In this case, the slight trend towards the decrease in knowledge use can mean that this aspect has been neglected, and that training programmes might not be well adjusted to reality and farmers' needs and problems. We can, in this respect, ask if the training programmes take into account these needs and problems and the diversity of production systems?

Content evaluation was not part of the project. It should be done in the future, for instance through local or regional panels, involving trainers and training coordinators, participants and former participants, subject-matter specialists, researchers and agricultural curriculum developers. In a more global perspective, we can also question the training programmes in respect to their integration in the overall agricultural knowledge and information system, at the national and regional levels. **This question takes us to the next point**.

Training and agricultural development

Professional training is, obviously, an important ingredient in the so called agricultural knowledge and information system, as defined by Röling (1988) and other authors, in parallel with extension, research, education and local or indigenous knowledge. In this sense we can question the extent to which training is linked to the other ingredients. For example:

- **How is training articulated with agricultural research?** (It is important to keep in mind, for example, the permanent need of actualisation of trainers);
- **How is training articulated with extension education?** (It is important to keep in mind that a training course is a learning opportunity which needs to be complemented or reinforced with other opportunities, more frequently, which can be organised by extension services. These extension activities can reinforce the role of training and serve as well as a needs assessment procedure concerning new training activities);
- **How does training articulate with education,** represented by Agricultural Schools, Colleges and Universities? (It is important to keep in mind that these institutions can provide training programmes for trainers, and are an important source of human and other resources, and can be relevant partners in organising training activities for farmers. On the other side, they can also concentrate attention on pedagogical research, creating knowledge on how to improve the training teaching-learning transaction);

- **How is training articulated with the local or indigenous knowledge system?** (It is important to keep in mind that knowledge transmitted in the training period is not the only or necessarily the best. Ignoring local knowledge, centring the teaching on the technician-instructor, the training can generate its own failure. That is why it is so important, in our view, to base programmes on a detailed analysis of reality, taking into consideration its diversity, and making the trainers aware of that reality. For the same reason, it is also important that the participants' knowledge and experience be integrated in the process. In many situations they will be the real trainers).

Monitoring and evaluation of training

Evaluation performs a key role in the training world. This study, which accomplished some objectives, leaves open many other aspects requiring attention. We think it is essential:

- **That the training divisions provide complete and organised files on each training programme and activity,** including information on participants, pedagogical procedures, trainers and other inputs, including budgets. These files will allow a permanent assessment of training programmes and will constitute a data base for monitoring, evaluation and planning purposes;
- **That each training programme be evaluated.** This evaluation should provide, in particular, information about each participant attitudes and perceptions about the training event. Using the same instrument, each of these evaluations can be periodically reviewed and analysed, to check regularities and trends, and some correctional measures taken to improve the process; and
- **That impact studies be done regularly, every two or three years,** preferably by type of course and using diversified methodologies, allowing documentation which details the influence of training in agriculture and rural development. These studies, we feel, should combine the use of surveys with in-depth case studies, and be centred in small and relatively homogeneous geographic units.

References

BENNETT, C.F. (1977). Analyzing impacts of extension programs. Washington D.C.: United States Department of Agriculture.

FOREST, L.B. e MARSHALL, M.G. (1978). Impact of extension in Shawano County. Methodology. Vol. 2. Madison, Wisconsin: University of Wisconsin.

PATTON, M.Q. (1982). Practical evaluation. Beverly Hills, C.A.: Sage.

RÖLING, N. (1988). Extension science. Cambridge: Cambridge University Press.

STEELE, S.M. (1978). Developing a survey of the combined impact of extension. Madison, Wisconsin: University of Wisconsin.

Rural Extension in Algarve, Southern Portugal: An Evaluation Case Study

Eduardo Figueira, Anabela Ferreira and Artur Cristóvão

The present study was designed to evaluate the rural extension activities implemented by the Algarve Regions participation, reactions, and results, three parameters of Bennett's framework (1979) to analyse the impact of extension programmes.

The case study approach was utilised to evaluate the impact of the extension activities. Generalisation of results to Portugal was not intended since the rural extension system has only been used in a few agrarian zones (baseline organisational units of the Portuguese Ministry of Agriculture). However, a random sampling strategy was used to build the case study to a representative contribution of the actors.

Perceptual data on farmers' contact (participation), reactions, and results was collected through two different instruments (40 contact farmers and 80 non-contact farmers). Data was analysed comparing farmers' perceptions to pre-established standards of participation, reactions, and results. In addition, al Directorate of Agriculture since 1977. The evaluation was based on the analysis of farmers´ comparisons between contact and non-contact farmers were made. The chi-square statistical test was used to support the results of comparisons, using a confidence level of 95%.

In general, results show the need for a reflection on the way Extension Programmes have been implemented in the Algarve Region. The use of contact farmers is not very well accepted by some of the non-contact farmers. Extension agents do not have adequate conditions to perform their work; transport is limited and all of them have regulatory duties that should not be done by extension agents. Some recommendations based on the conclusions are presented.

Purpose and Objectives of the Study

This evaluation case study was a part of a project to evaluate the impact of the Agrarian Professional Training and Rural Extension programmes conducted by the Portuguese Regional Agricultural Directorates from 1977 to 1986. The main goal of the present study was to evaluate the Rural Extension programme implemented in the Agrarian Region of Algarve, Southern Portugal. More specifically, the study intended to evaluate:

1) Farmers' participation in Extension activities;
2) Farmers' feelings and views about the Extension programme; and
3) Extension consequences for farmers and the community.

In terms of farmers' participation, the study intended to know who initiates the contact between farmer and extension agent and how much and where it took place. Related to farmers' feelings and views, it was intended to assess farmers' reactions, namely their satisfaction in terms of the received support and of the ampleness and manner of contact with extension agents. In relation to consequences for individuals and community, the study intended to evaluate results for farmers, farms, and the community.

Evaluation Model and Methodology

The present evaluation study used the conceptual framework from Bennett (1979) and the model analyses impacts of extension programmes. According to Bennett, a hierarchy of impact levels correspond to a hierarchy of evidences which are: (l) inputs, (2) activities, (3) participation, (4) reactions, (5) change in knowledge, attitudes, skills and aspirations, (6) change of practices, (7) end results (Fig.l).

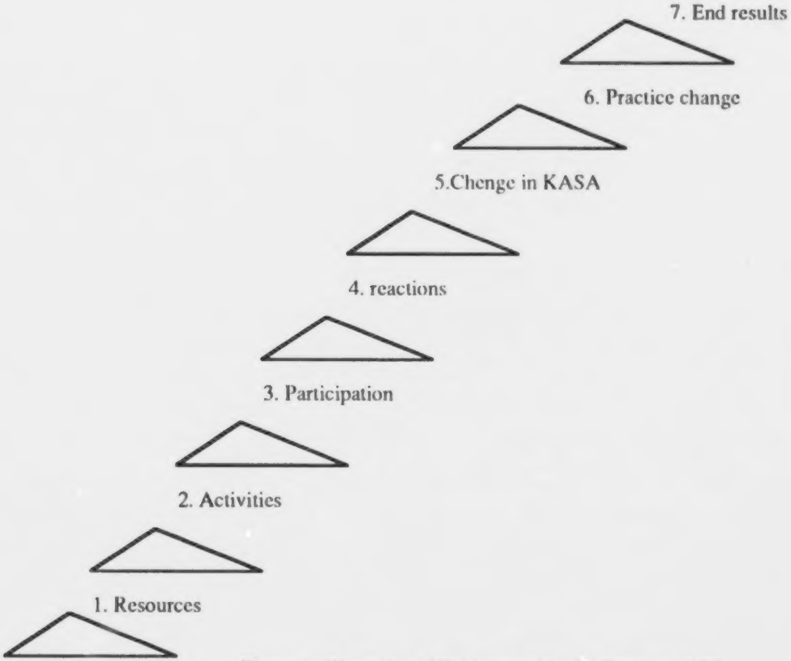


Figure 1: Hierarchy of Evidence, cited by Bennett, 1977

Following a case study approach and utilising perceptual data captured from contact farmers, non-contact farmers and extension agents, the impact of extension activities was evaluated based on three of Bennett's levels of hierarchy of evidences: l) farmers' participation, (2) farmers' reactions, and (3) end results of extension activities. Perceptual data was preferred to hard evidence for different reasons. First of all, collection of perceptual data is easier and less expensive than gathering hard evidence. Secondly, farmers assess effectiveness of extension activities more in terms of the value they perceive than in terms of their real value. Finally, perceptual data allow respondents retrospectively to review their experiences with the extension programme.

In the context of this study, contact farmers are defined as the farmers with whom extension agents maintain periodical and regular interactions through visits or other types of contact. The non-contact farmers are all the other farmers with who extension agents do not have a regular contact.

This evaluation case study was conducted in two Agrarian Zones, the baseline organic units of the Agricultural Region of Algarve, one of the seven regions in which Portugal is agriculturally organised. The Algarve Agricultural Region, located in the southern part of the country, occupies around 5.7% of the Portuguese territory and is co-ordinated by a Regional Agricultural Directorate of Algarve (DRAAG) directly dependent upon the Ministry of Agriculture. As the others, DRAAG is organised into technical divisions and local extension services. The local extension services are integrated into the Agrarian Zone and operationally organised into local extension teams which are responsible for assisting farmers.

The Agrarian Zone of Silves, organised into 4 extension teams, is located in the western part of Algarve and occupies around 100,834 ha (about 250,000 acres) 50% of which are situated in mountainous terrain. It has 8,500 small farms with a mean average size of 14 acres. The main agricultural production is constituted in fruit (citrus, almonds, figs, and table grapes) and vegetable production. The tendency is for increasing citrus, namely orange production. The Agrarian Zone of Alcoutim, located in the north-east part of Algarve, is essentially mountainous and is organised into 5 extension teams. The Alcoutim economy is based on extensive cereal and sheep production complemented with handicraft activities. It is a region of an intensive emigration mainly due to the very small agricultural units available for each family.

The extension system implemented in these two agrarian zones of Algarve is an adaptation from the T & V System of Extension. For this reason, it was based on the use of contact farmers and with the primary utilised extension methodology the individual contact. However, meetings and other group methodology had also been utilised when the nature of the subject facilitated contact by a group of farmers.

Generalising from the evaluation results to Portugal was not an intention of this study. On one hand, the extension programme was not implemented in the entire Portuguese territory and, on the other hand, it was intended to specifically characterise each extension programme implemented in the same Portuguese regions. For this reason, the case study approach was utilised to evaluate the extension programme implemented in two Agrarian zones of the Algarve Region. One in which the extension programme had been implemented for more than 10 years (Silves) and another where the extension programme had less than 5 years of implementation (Alcoutim). It was considered important to guarantee a contribution of extension experiences of different temporal implementation. For this reason, selection of the Agrarian Zones was not randomly done. However, in order to build a representative case study, the main actors (contact farmers and non-contact farmers) to be interviewed were randomly selected according to the following scheme (see figure: 2):

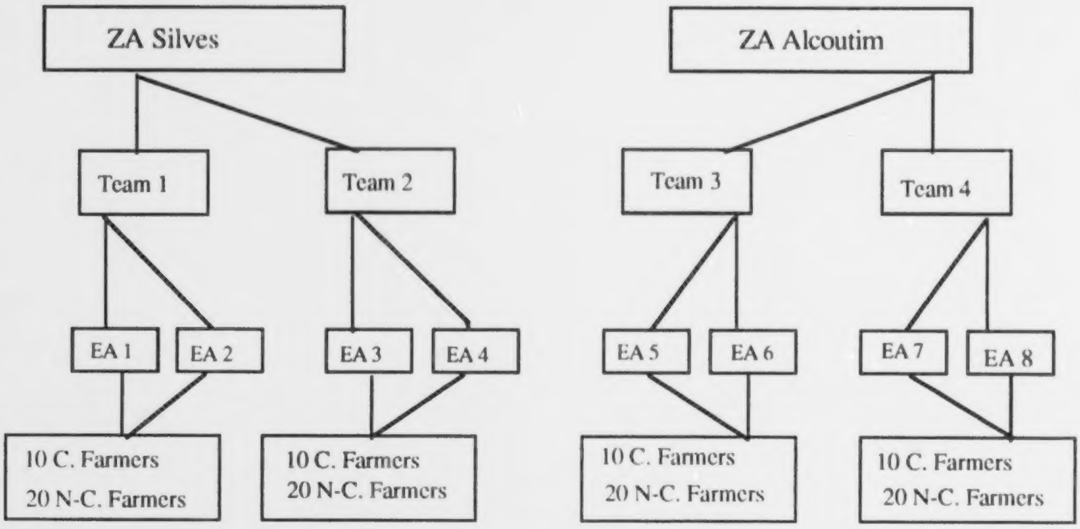


Figure 2: Scheme for total sample of 40 contact farmers and 80 non.contact farmers

Initially, two extension teams from each Agrarian Zone were randomly selected. After that, two extension agents from each extension team were also randomly selected. Finally, 30 farmers (10 contact farmers and 20 non-contact farmers) were randomly selected from the area through the assistance of each selected extension agent . Thus, a total sample of 120 farmers was established. This number was a compromise between the particularities of the study approach and context and the reduced available financial resources.

Farmers' perceptions on contact with extension agent, reactions about extension activities, and extension results were collected through a questionnaire directly administered to farmers. In the context of this study, contact was defined as the set of ways farmers interacted with extension agents. This variable was operationalized with various indicators: 1) farmers' participation in professional training; 2) means, duration, and periodicity of farmers' interaction with extension agents; 3) contact-farmers' perception of their role; 4) type of interaction; and 5) non-contact farmers' perception of contact farmers' role. Reactions were defined as farmers' attitudes, opinions, way of seeing and feeling toward extension activities. This variable was operationalized through: 1) usefulness of acquired knowledge; 2) effectiveness of the transferred technologies; 3) satisfaction with the received support, interaction with extension agents and way of tackling farmers' problems. Results were considered as the consequences for farmers', farms and communities interactions from the extension activities. This variable was operationalized by: 1) farmers' adoption of practices; 2) changes of attitudes, skills and knowledge; and 3) positive aspects for farmers, farm, families, and community. In complementary manner, some characteristics of farmers and farms were also measured and utilised to help in understanding the evaluation results.

Evaluation data was essentially analysed by comparing l) data observed with standards theoretically established and 2) the groups of farmers among them. Both comparisons were made for each one of the evaluation parameters, that is, *contact*, *reactions*, and *results*. The chi square statistical test at 95% level of confidence was utilised to support conclusions.

Results

Contact farmers' contact with extension agents was lower than what would be expected for an extension programme based on the *contact farmer strategy* (see Table 1 in annex). In addition, contact farmers' participation in professional training was lower than what should be advisable. However, contact farmers had easy access to extension agents and interaction between them was most of time initiated by the contact farmer.

Non-contact farmers' interaction with extension agents was also lower than expected (see Table 2 in annex). Nevertheless and surprisingly, it was higher than contact farmers'. Besides, the majority of non-contact farmers knew extension agents and contact farmers from their region. Such as the contact farmers, most of the non-contact farmers had a very low participation in professional training.

Most of contact farmers considered interaction with extension agents to be important for their activity and passing knowledge to other farmers to be their role in the extension programme (Table 3 in annex). In addition, they were satisfied with the way extension agents interacted and discussed their problems with them. However, they showed less satisfaction with support received from extension services.

In general, non-contact farmers considered that selection of contact farmers had been based on farmers' knowledge and interest for extension activities (Table 4 in annex). Nevertheless, some of them felt that contact farmers' selection was made on an economical basis. For this reason, non-contact farmers feel that they need more support from extension service than contact farmers do. In addition, they feel that extension services should give them financial support and more information.

In general, it may be said that the extension programme has not been attaining the expected results. Most of the contact farmers considered l) the extension programme as being of little utility for them, 2) to have not learned much with extension agents, and 3) to have only utilised a few times what they have learned from them (Table 5 in annex). Even though, most of the contact farmers have recommended interaction with extension agents to other farmers.

Most of the non-contact farmers considered l) to have not learned much from contact farmers and 2) to have only utilised a few times what they have learned from contact farmers (Table 6 in annex). However, interaction with extension agents had been recommended to them by some of the contact farmers.

Conclusions and Recommendations

Taking into consideration data analysis complemented with evaluator's personal observation and data collected from extension agents, the following can be concluded:

1. In general, evaluation results show that the effectiveness of the extension programme implemented in the Algarve Region has been very limited.
2. Contact farmer strategy as the philosophical basis for the extension programme has not been successful in the Algarve Region. Contact farmer's interaction with extension agents was lower than what should be the case. In addition, non-contact farmers feel they need more support from extension services than the contact farmers and that contact farmers were selected on an economical basis.
3. The Algarve Extension Programme has not been connected to the professional training programme. Farmers' participation in the professional training offerings has been very low.
4. Farmers were not very satisfied with the support received from extension services. However, they showed satisfaction with the way extension agents interact and discuss problems with them.
5. Extension results have not been at the expected level of adequacy. Contact farmers feel that extension programme have been of little utility for them. Non-contact farmers considered to have not learned much from contact farmers.

Based on the evaluation of results and conclusions, the following recommendations are in order:

1. A deep reflection about the extension approach implemented in the Algarve Region should be made.
2. The extension approach should not be fundamentally based on the contact farmer strategy. On one hand, this strategy should be complemented with methods to reach directly non-contact farmers; on the other hand, each extension agent should increase the number of contact farmers - one for each project or main activity - in order to avoid creating elites.
3. The extension programme should be closely interrelated with the professional training programme. Continuing professional education should be one of the main basis for the extension programme.
4. Farmer's participation should be increased in all stages of the extension programme development. Active farmers' participation in programme planning should be encouraged if extension programme is to be effective.
5. Extension programme should be implemented by a private and non-profit partnership constituted by farmers' associations, universities, Regional Directorate of the Ministry of Agriculture, professional training and counselling agencies, regional planning agency, financial institutions and others interested in the regional development.

Reference

BENNETT, C.F. (1977) *Analyzing impact of extension program.* Washington D.C.:Extension Service, U.S. Department of Agriculture.

Annex of Data by Tables

Table 1: Contact Farmers´ Participation in Extension Activities

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Have you participated in a agricultural short course?	Never	65%	1%	3	1690.3	7.81	yes
	Once	30%	9%				
	Twice	5%	40%				
	More than twice	0%	50%				
What type of course did you participate in?	Entrepreneur Course	25%	33%	3	1658.3	7.81	yes
	Specific subject Course	7.5%	33%				
	O.M.A.	2.5%	33%				
	None	65%	33%				
How many years have you had contact with the extension agents?	1 to 5 years	62.5%	10%	2	127.01	5.99	yes
	6 to 10 years	32.5%	40%				
	More than 10 years	5%	50%				
Who initiated the contact?	Farmer	55%	50%	2	4.45	5.99	no
	Extension agent	45%	40%				
	other	0%	10%				
Why did you initiate the contact?	Resolve problem	17.5%	25%	5	37.37	11.07	yes
	Obtain Subsidy	20%	15%				
	Friend/neighbour contact	0%	4%				
	Learn new things	25%	45%				
	Agent approached me	37.5%	10%				
	Other	0%	1%				
What form or type of contact with the extension agent occurred?	Farm visit	45%	60%	4	98.92	9.49	yes
	Office visit	35%	14%				
	Group Meeting	5%	24%				
	Farm fair	0%	1%				
	Other	15%	1%				
How often does the extension agent make contact with you?	Fortnightly	22.5%	50%	5	142.42	11.07	yes
	Monthly	10%	25%				
	2 visits every 2 months	10%	15%				
	Sometimes	55%	7%				
	Rarely	2.5%	2%				
	Other	0%	1%				
When you require contact, does the extension agent facilitate the process?	Yes	97.5%	95%	1	0.5263	3.84	no
	No	2.5%	5%				

O.P.= Observed percentage E.P.=Expected percentage DF=degrees of freedom
X^2=Chi square calculated X^2C= critical chi square SG=significance

Table 2: Non-Contact Farmers´ Participation in Extension Activities

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Have you participated in a agricultural short course?	Never Once Twice More than twice	92.5% 7.5% 0% 0%	1% 9% 40% 50%	3	6770	7.81	yes
What type of course did you participate in?	Entrepreneur Course Specific subject Course O.M.A. None	2.5% 3.75% 1.25% 92.5%	33% 33% 33% 33%	3	6765.5	7.81	yes
Do you know any extension agents in the agricultural zone?	Yes No	86.25% 13.75%	95% 5%	1	12.985	3.84	yes
How did you get to know the extension agent?	Contact at office Byway of other farmer Non-farming friend Meeting/demo Other	35% 25% 1.25% 2.5% 36.25%	30% 30% 5% 30% 5%	4	180.0	9.49	yes
How often do you make contact with the extension agent?	Fortnightly Monthly 2 visits every 2 months Sometimes Rarely	26.25% 17.5% 23.75% 27.5% 5%	50% 25% 15% 9% 1%	4	58.13	9.49	yes
Why don't you maintain contact with the extension agent?	No need Don't know them No time Have other assistance Other	25% 3.75% 25% 1.25% 45%	20% 20% 20% 20% 20%	4	51.625	9.49	yes
Do you know farmers that maintain contacts with the extension agent?	Yes No	90% 10%	95% 5%	1	4.211	3.84	yes
Do the farmers you know that maintain contacts and discussions with extension agents discuss those same subjects they discuss with you	Yes No Sometimes	37.5% 47.5% 15%	80% 1% 19%	2	1748.5	5.99	yes
Do they question you concerning the same subjects that are discussed with the agent?	Yes No Sometimes	37.5% 47.5% 15%	80% 1% 19%	2	1748.5	5.99	yes

O.P.= Observed percentage E.P.=Expected percentage DF=degrees of freedom
X^2=Chi square calculated X^2C= critical chi square SG=significance

Table 3: Contact Farmers´ Feelings and Views about Extension Programme

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Do you feel that you should be present when the extension agent visits your community?	Yes No	80% 20%	95% 5%	1	18.947	3.84	yes
Do you feel you should communicate to your neighbours or friends, what the agent tells you?	Yes No	95% 5%	95% 5%	1	0.0	3.84	no
Are you satisfied with the services you receive from extension service?	Yes Somewhat No	47.5% 50% 2.5%	80% 19% 1%	2	26.413	5.99	yes
In relation to your needs and problems, do you believe the support from the agent is sufficient?	Sufficient Somewhat Insufficient	47.5% 35% 17.5%	80% 19% 1%	2	119.57	5.99	yes
Are you satisfied with the manner in which the extension agent makes contact with you?	Yes Somewhat No	70% 27.5% 2.5%	80% 19% 1%	2	2.921	5.99	yes
Are you satisfied with the method the agent uses to discuss topics with you?	Very satisfied Somewhat satisfied Not satisfied	82.5% 17.5% 0%	90% 9% 1%	2	3.861	5.99	yes

Table 4: Non-Contact Farmers´ Feelings and Views about Extension Programme

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Why do you think that these particular farmers are contacted by extension agents?	More enlightened Larger farms More interested Other	12.5% 11.25% 51.25% 25%	18% 1% 80% 1%	3	554.46	7.81	yes
What assistance do you think the agents should give to farmers?	More information Financial support Others	40% 17.5% 42.5%	34% 33% 33%	2	8.859	5.99	yes

O.P.= Observed percentage E.P.=Expected percentage DF=degrees of freedom
X^2=Chi square calculated X^2C= critical chi square SG=significance

Table 5: Contact Farmers´- Extension Consequences for Farmers and Community

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Have you recommended ideas from the extension agent to other farmers?	Yes	77.5%	95%	1	25.789	3.84	yes
	No	22.5%	5%				
How useful has been the information received by the extension service?	Very useful	27.5%	80%	2	74.439	7.81	yes
	Somewhat useful	72.5%	19%				
	Not useful	0%	1%				
Have you learned from the extension agent?	Very much	27.5%	80%	2	74.439	5.99	yes
	Somewhat	72.5%	19%				
	Nothing	0%	1%				
Have you used what you learned from the extension agent?	Always	22.5%	60%	3	115.65	7.81	yes
	Many times	20%	30%				
	Sometimes	57.5%	9%				
	Never	0%	1%				
Have your neighbours used innovations or ideas they learned from you?	Always	0%	60%	4	438.56	9.49	yes
	Many times	7,5%	30%				
	Sometimes	52.5%	8%				
	Never	25%	1%				
	Don't know	15%	1%				
What changes have resulted from your contact with the extension agent?	New innovations	85%	90%		3.861	5.99	yes
	Investment Project	17.5%	9%				
	Farm size change	0%	1%				
	Farm production change						
	Coop Membership						
	Association Membership						
	Ag Management Club						
	Farmer training course						
	Other						
	None						
What has been the most important result from your contact with the extension agent?	New ideas	42.5%	20%	4	24.75	9.49	yes
	New knowledge	12.5%	20%				
	Monetary assistance	35%	20%				
	More open	5%	20%				
	Other	5%	20%				

Table 6: Non-Contact Farmers´ - Extension Consequence for Farmers and Community

QUESTIONS	Possible Response	O.P.	E.P.	DF	X^2	X^2 C	SG
Have you learned something from these contact farmers?	Very much	17.5%	80%	2	238.06	5.99	yes
	Somewhat	71.25%	19%				
	Nothing	11.25%	1%				
Have you used innovations or information that you learned from these farmers?	Always	16.25%	60%	3	455.99	7.81	yes
	Many times	20%	30%				
	Sometimes	42.5%	9%				
	Never	21.25%	1%				
One of these contact farmers recommended that you contact the extension agent?	Yes	51.25%	95%	1	322.37	3.84	yes
	No	48.75%	5%				

O.P.=Observed percentage E.P.=Expected percentage DF=degrees of freedom
X^2=Chi square calculated X^2C= critical chi square SG=significance

Technology Transfer System in Turkey: Two Case Studies

Tayfun Özkaya

The Effectiveness of the Extension Service in Turkey

This paper is prepared by using some of the data from a research project conducted in Izmir and Tokat provinces of Turkey. Izmir is in the developed and Tokat is in the less developed part of Turkey. The aim of the research was to find out some factors affecting the effectiveness of extensionists and to determine a better organisational structure for extension. With this purpose, the data was collected from 143 extensionists through questionnaires.

In the past decades many attempts have been made to improve and increase Turkish agriculture production. But, the organisational structure of the extension system is highly bureaucratic and employs many extensionists. Although the reorganisations have been performed in 1983 and 1985 by the Ministry of Agriculture, the discussions on the effectiveness of the extension system are continuing.

Results

One of the questions addressed to extensionists is "In what extent are you able to be effective in disseminating innovations amongst farmers under existing conditions?". The extensionists' replies are shown in percentages in Table 1:

Table 1: Effectiveness in Disseminating Innovations

EFFECTIVENESS	%
very low	11.9
low	29.4
medium	38.4
high	19.6
very high	0.7
Total	100.0

According to the Chi-square tests there are not significant differences between men and women, senior and junior extensionist and between Izmir and Tokat provinces. But, the extension system has the dominant effect on this matter.

The participation of extensionists to extension programming and evaluation activities are very low. The results about participation are shown in Table 2:

Table 2: Participation of Extensionists in Programming and Evaluation

PARTICIPATION	%
Never	24
Seldom	38
Sometimes	26
Often	9
Everytime	3
Total	100

One of the question was, "Are your extension activities prohibited by excess centralisation?". The results are shown in Table 3:

Table 3: Excess Centralisation in Extension Activities

CENTRALISATION	%
Very much	28
Much	9
Sometimes	43
Rarely	15
Never	5
Total	100

Conclusions

Many of the extensionists told us that they are not effective enough in disseminating the innovations. The extensionists declared that their participation in management is low, the programmes and job definitions are not clear. It was also found that the correlation linkage between job and responsibility is rather weak and the promotion activity for better positions and awarding is very weak.

As a result it was concluded that it will be very useful to establish an organisation, which encourages initiative taking and the democratic process of bottom to top planning. Extension councils have to be formed with the participation of farmers representatives at county, province and regional levels.

The Neglected Groups in Research and Extension Activities: The Turkish Case

In this article, the group neglected by researchers, extension workers and managers has been evaluated by using the data of the research carried out on dairy cattle farmers in Aegean Region, Turkey. Research and Extension activities are concentrated on big farms in the plains. Generally small dairy producers in the mountain areas are neglected. As a result, a desired progress in production could not be reached and an increase in income disequilibrium are noted. In this article some concrete recommendations will also be discussed.

This paper is prepared by using the data of a research project conducted in 102 enterprises in which dairy cattle husbandry is carried out together with plant production activities (Özkaya, 1988). The Aegean Region is a well developed region in Turkey in many aspects. However, there are both developed and less developed localities and farmer groups in this region. In Izmir, Manisa and Aydin provinces where the research was conducted, we find in the villages in the plains the farmers raise exotic breeds, perform progressive agricultural techniques, and have relatively high incomes. Contrary to villages in the mountains, the farmers raise native breeds, perform traditional agricultural techniques and have less income.

The producers in the villages in the plains and mountain villages form two different groups. In addition, the lowland villages can be divided into little producers and big producer subgroups according to their different research and extension needs. From research and extension aspects, the producers in mountain villages were generally neglected. In this paper, problems of different groups are examined and some proposals are given.

Sampling and Analysis

The above mentioned research has been carried out in Turkey in Aegean region in Izmir, Manisa and Aydin provinces. 102 farms had been chosen by stratified random sampling methods. Most of the farms in the sample group had one cow. An important part of the total milk production was coming from farms with one cow and the number of big farms with large dairy herds were few. So farms with one cow needed to be added to the sampling frame. Interviews with the selected farmers had been performed in 1988. The farms had been divided into two different groups, one from the lowlands and the other from mountain region and then analysed by cross-tabulation.

Innovation scores which had been a part of other studies were used and calculated for every farmer (Rogers, 1967,.134; Jones, 1979, p.111). Through the index from those scores, the farmers from different agricultural conditions are compared. The farmers either living in lowland or mountain villages had been grouped into "less", "medium" and "high" groups according to their innovation scores. The significant differences between groups had been defined by analyses of variance and chi-square tests.

Results

Education:

In lowland villages 92% of the farmers and 71% in mountain villages can read and write. The farmers' school period average was 4,38 years in the lowland villages and 2,64 years in mountain villages.

Tractor Ownership:

48% of the farmers living in lowland villages and 14% in the mountain villages had a tractor.

The Gross Product Value of Farm and Dairy Cattle Sector:

The average yearly gross product value of farms in lowland villages was $5944 and $2373 in the mountain villages. It should be stated that these are not net incomes. Dairy cattle sector is the 3rd or 4th important production sector in farm structure.

The yearly gross product value of dairy cattle sector was $1705 in lowland villages and $505 in mountain villages. Dairy cattle sector's share in total farm gross product was 29% in lowland villages and 21% in mountain villages.

Herd Size and Yield:

The average farms have 2,62 cows in lowland villages and 2,14 cows in mountain villages. In lowland villages, exotic pure-breds make up 59,5%, cross-breeds 30,2%, and the local Yerli Kara breed is 10,3% of the total number. In mountain villages these shares are 10,3% for pure exotic breeds, 31,1% for cross-breeds, and 58,7% for the Yerli Kara breed. Yerli Kara is a native Anotolian breed that has less milk yield, but greater resistance against diseases and bad environmental conditions and it can find its feedstuff even in the worst pastures. The majority of the pure exotic breeds are Black and Whites. There is also a limited number of Brown Swiss.

The average milk yield in a lactation period is 2460 kg in lowland villages and 1044 kg in mountain villages. The milk yield is increasing with innovativeness both in lowland and mountain villages.

Marketing:

The marketed share of total milk production is 90% in lowland villages and 25% in mountain villages. The rest of the milk production is processed and consumed at home.

Housing and Feeding:

There has been recorded an increase in the herd size and milked cow numbers utilising technology in lowland villages and the study found a decrease in the mountain villages. In lowland villages, the cattle are generally kept and fed in stables, but in mountain villages the cattle graze in pastures and olive and fig orchards during an important part of the year or the whole year. In mountain villages usually after calving the cow is brought to the barn and milked for a short period, while in some cases they are not brought to the barn to be milked.

In mountain villages, there is an extensive production system, depending on the overuse of the pasture land. It is not easy to draw a line between milk and meat production. In mountain villages barns are temporary shelter places.

As an average, a farm has 7,55 decarage of alfalfa and other animal fodder in lowland villages. In mountain villages, this figure is 0,86 decars. In lowland villages a farm averages 4,03 decars of olive orchards and 0,83 decars of fig orchards. These figures are 8,24 decars and 8,50 decars respectively in mountain villages. In mountain villages, there are plenty of olive and fig trees, the cattle are fed freely under these trees. Olive, fig and cattle are complementary production practices.

In contrast to the lowland villages, mountain villages have limitations in irrigatable lands which benefit rich vast pastures and olive and fig orchards. This forces the mountain farmers into extensive cattle husbandry.

Technology Selection:

It can be stated that the Yerli Kara breed is preferred in mountain villages, because these cattle can use the poor vegetation of the mountains, they are resistant to diseases, and the rustic breed doesn't require attentive husbandry care. Without barn feeding, it is not possible to keep and raise exotic breeds in the mountainous husbandry regime. The strategy of the Agricultural Department about the ideal breed in mountain villages is not definite. The Department is trying to adopt exotic breeds every where, but the policy can not be considered successful in mountain villages.

The extension officers are working to provide artificial insemination as a free service in the lowland villages, but this service can not be delivered in the mountain villages. There aren't any research studies to develop a new breed or cross-breed which could survive in the mountainous conditions while increasing milk production capacity compared to the Yerli Kara breed. Because there is no distinct boundaries between milk and meat-production, cattle improvement studies should consider these two dimensions equally.

Extensive cattle husbandry with native breeds on pasture land or orchards in mountain villages is attractive. Mountainous cattle production, without using the technology diffused from lowland villages, is rational and profitable. We need to ask if a technology which is different from the one in the lowland villages could be developed for the mountain villages conditions. But, what a shame that the majority of researchers and extension workers are not interested in studying the existing conditions in mountain villages, and they therefore force these villagers to adopt animal husbandry techniques appropriate for the lowland villages. On the other hand, many extension workers think that no useful result could be obtained by on-farm dairy cattle research in mountain villages and they than concentrate their efforts in lowland villages.

Some applicable results may be obtained for the indigenous cattle production in mountain villages, when more research is carried out by animal scientist and veterinarians considering mountainous conditions. Similarly, if on-farm research can be realised on grazable plant material found under olive and fig trees in mountain villages I believe some positive results may be achieved.

In the Aegean region of the mountain villages, the number of cattle and particularly cattle producers are the reason for the existence of the extension services. Increases in meat and milk yields in mountain villages could be very important for the poor farmers. The research in improving cattle breeds and production techniques for these producers could make a triple effect. So a development in this area would be an avant-garde for development in many other similar areas.

Extension Activities and Small Farmers in Lowland Villages:

The small farmers in the lowland villages are also neglected by research and extension. Rural appraisal in all three provinces showed that the most important activity of the extension service was the "silage preparation". Demonstrations, field days, videos and slides have been prepared on this subject. Ensilage can be performed only by large farmers who are the minority. The majority of the farmers have a few cows, insufficient irrigatable land and little financial opportunities. In my research only 5% of the farmers in the lowland villages, had declared that they had suitable conditions for silage making. Although, importance should be given to silage making for all farmers without concentrating efforts only on the large farmers.

Conclusions

It can be stated that involving cattle husbandry, small farmers in general and all farmers living in mountain villages in Aegean Region are neglected by research and extension activities. If this tendency continues, the gap between the farmers living in the mountain and lowland villages and between the small and large farmers will increase. Although, there were some big attempts to develop and support large dairy cattle producers in the last decades by the World Bank support through the radical change in extension structure, an increase in milk production could not be reached (Kahya, 1985). In reality, these large farms had stopped their production and liquidated their cows during the economic crisis. Now these farms are being forced once again to work with imported dairy cows. Because of the above mentioned reasons, to increase milk yield and to better the equilibrium among the various types of farmers, more importance should be given to the neglected small farmers and farmers living in mountain villages involving research and extension activities. This will also effect the success of extension work.

References

Encyclopaedia Britannic, (1970). vol. 21.

FAO, (1984). Agricultural Extension: A reference manual. Rome.

JONES, G. (1979). Grassland Farmers in England and Wales, University of Reading, Agricultural Extension and Rural Development Centre, London England

KAHYA, C. (1985). Entansif Süt Üretimi Projelerinin Izmir, Manisa ve Aydin Illerindeki Uygulamasinin Ekonomik Yönden Degerlendirilmesi Üzerine Bir Arastirma doktora tezi, cogaltma, Izmir.

ÖZKAYA, T., (1988). Ege Bolgesinde Seoilrnis Bazi Illerde Süt Sigirciligina Yönelik Tarimsal Yayim Stratejisinin Analizi, Ege Univ. Ziraat Fak.Tar.Eko.Böl. Izmir.

ROGERS, E. (1967). Diffusion of Innovations. Glencoe, U.S.A: The Free Press.

TARIM, Orman ve Köy Isleri Bakanligi, (1987) Tarimsal Yayim ve Uygulamali Arastirma Projesi, Ankara.

Training and Curriculum Development

Programme Planning and Continuing Education for Farmers

Niels Fink Nielsen, Kirsten Hog and Kjeld Bouet

This paper provides information about some important aspects concerning the continuing education situation of farmers in Denmark. The purpose is to present a brief and yet clear exposition of various topics concerning organisation, activity range, and particularly the planning process of the educational programme.

Continuing Education for Danish Farmers

The ongoing economic and technological development both in Denmark and the international society causes a steady stream of new demands and challenges toward the individual farmer. Therefore a major task of the continuing education activity is to show the farmer various possibilities of problem solving, to inspire them, and to provide them and their family the necessary knowledge for making the right decisions. Thus, the farmer currently needs to update his/her knowledge about production techniques and methods, market opportunities and prices, and also farm management and economy. And, it all is included in the work tasks of continuing education for farmers.

Over the years, continuing education courses have been increasingly geared toward the farmer as a manager and decision maker. An increasing number of farmers today also demand to share both the long term and the short term planning of their own training programmes. I.e. more and more training courses are being prepared in close collaboration with Info-groups (experience exchange groups of normally 8 - 10 farmers with equal production pattern), and also producer organisations and associations. This allows the potential course participants to have their own production and economic figures and materials forming a basis in the educational process.

New managerial tools, recently introduced to Danish farmers, also are influencing the way in which continuing education courses are being planned and prepared, and will presumably become increasingly important in the years to come.

Organisation

For practical reasons, continuing education activities for farmers in Denmark, since 1987, have been organised within 5 regions, covering the whole country. Annex 1 at the back of this paper shows the organisation chart.

Within each region the number of farm holdings (in brackets) establish a basis for the educational work including statistics, employment of regional training committees and advisers, etceteras. According to recent statistics from the Ministry of Agriculture, the course activity for farmers today amounts to approximately 7.000 participants, i. e. 8 per cent of the total number of farmers participated in long term (minimum 5 days) courses in 1990.

Regional Training Committees

In each region an in-service training committee consisting of representatives from local unions and associations of farmers, agricultural schools, and eventually also agricultural advisers, has been established. The training committee holds the formal responsibility for the continuing education activities for farmers in the area. The individual committee employs its own in-service training adviser, who is closely connected with, and also physically placed at the regional training centre. Thus, through the representation of his/her own organisation or union the single farmer and agriculturist remains in contact with the regional training centre and adviser.

Regional Training Advisers

The regional in-service training adviser offers assistance in any question related to long term continuing education courses for farmers with the particular aim to:

- Currently updating the knowledge of persons responsible for continuing education activities for farmers within farm organisations and agricultural schools concerning legal matters, rules and regulations, and also administrative questions.
- Participating in ongoing work concerning planning, implementation and follow up of continuing education activities for farmers in close collaboration with the regional training centre.
- Attending to the adaptation, co-ordination, and announcement, of the educational activities that may be of interest to farmers both within and outside the region.
- Serving as counsellor for course conductors and in farmers unions and associations as well as agricultural schools.
- Starting and inspiring, unions and schools both educationally and technically in their continuing education efforts.
- Providing for instructional sessions and experience exchange for course conductors and program planners to be arranged in the region.

Regional Training Centres

The in-service training centre in each area obtains the primary function of carrying out continuing education courses for farmers, farmers spouses, and employers in farm holdings, entitled: "One week in agricultural college."

The centre may be looked upon as a regional place of continuing education and development work. In close cooperation with the regional training committee and adviser, the centre is planning and developing new approaches to program design and also educational materials to be used both by agricultural organisations and schools. The centre works for improving the level and standard of the continuing education effort, as a whole. As the centre holds a high degree of specialisation within program design and implementation, this kind of development work may have a positive effect on the total continuing education effort in the area, even if the larger part of the educational activity takes place within farmers unions and agricultural schools.

National Training Agency

The Agricultural Information Office, an organisation affiliated to the Ministry of Agriculture, aims at promoting the agricultural information and education work for farmers in collaboration with the existing research, education, and advisory system. Its board of directors employs the national agency of continuing education for farmers and, thus, gives the Information Office special responsibility at a national level including responsibility for the allocation of means and financial support to the regional training adviser arrangement.

Important to its functioning as a national continuing education and development agency, the Agricultural Information Office has a broad range of contacts both within public administration, ministries and agricultural organisations and institutions, and also various areas concerning advisory and educational work. Besides, the Information Office directly is engaged in various projects concerning analysis of farmers information and in-service training needs, and also development work dealing with interdisciplinary approaches to farm management advice and training of the individual farmer.

Legal Matters and Public Support

Since January 1983 a special in-service training act has allowed Danish farmers to attend continuing education courses at reduced costs. This includes longer term courses of minimum 5 days duration, either as residential "One week in agricultural college" courses or as non-residential courses of 5 separate days undertaken by a farmers union or an agricultural school.

Entitled to such support from the Ministry of Agriculture are farm owners, tenants, and managers in agriculture and forestry, and their partners. Employees and others who intend to seek employment in agriculture are also included. Courses are restricted to persons of minimum 18 years of age, and to maximum 25 participants at a time.

The amount of participant support depends on the educational set up. The maximum support for a one week residential course amounts to 60 percent of the course fee, including room and board, educational facilities and materials. Participants in non-residential types of courses may receive support according to a proportional part of the basic costs for running the educational activity.

In line with the general desire among agricultural organisations and a majority of politicians to support family farming, the Danish Parliament in 1981 passed an act on farm relief service. The administration of this arrangement is undertaken by local farmers organisations. In general, the farmers themselves pay most of the costs for farm relief. In case of sickness and disaster, and also participation in long term training courses, public support may amount to 60 per cent of the actual costs.

In connection with the prolongation of the above mentioned in-service training act for farmers, in 1987, it was decided that the Ministry of Agriculture should yield additional support to planning, co-ordination, and information projects. This, in turn provided basis for the establishment of the regional training adviser arrangement. The overall objective of this project is to promote the extension of continuing education for farmers through the development and accomplishment of long term in-service training courses.

Receivers of project support are, however, assumed to pay by themselves 50 per cent of the costs in connection with the educational activity in question. The percentage of support is, in turn, not allowed to exceed 50 per cent of the approved justified costs. Project support is applied for and administrated by the Agricultural Information Office.

Range of Activity

A quantitative statement of the participation in continuing education courses for farmers is shown in Table 1 below. The training activity refers to the accomplishment of approved training courses in 1987 and 1990.

Table 1: Survey Concerning the In-Service Training Activity for Farmers 1987 and 1990

	1987	1990
Number of participants	4094	6718
Hereof:		
One week in agricultural college	2962	3527
5 days non-residential course	1132	3191
Men	3190	5394
Women	904	1324
Farm managers	2836	4958
Employees	675	1029
Family hands	583	731

Source of Information: Ministry of Agriculture.

About 7000 farm people today are taking part in the publicly supported continuing education programme for farmers. In the period of 1983 - 1990 the courses were attended by more than 35.000 farm people, and hereof 25.000 participants did attend such courses for the first time. According to statistics from the Ministry of Agriculture the course participants may be divided by occupation as follows:

72 per cent farm managers
18 per cent farm employers
10 per cent family hands

20 per cent of all participants were women. The female participation has been larger on farm economics and general subject matter courses, and lesser on specialised subject matter courses.

Programme Planning and Development Work

The trend during recent years toward more and more specialised in-service training courses for farmers makes it necessary in the planning work to focus on well defined target groups in order to obtain optimum level of quality in the specific training sequences and programmes.

In their efforts to develop both the technical and educational aspects of programme planning and continuing education for farmers the above mentioned regional in-service training centres may draw on outside expertise and resource persons. Besides, each centre may undertake more individual tasks within agricultural education and extension work. E.g. the two centres, Tune near Copenhagen, and Koldkaergård near Århus, together deal with a rather extensive in-service training programme for Danish agricultural teachers and extension workers.

In the following, however, this paper entirely deals with the continuing education activity for farmers, undertaken by Koldkaergård Landboskole in close collaboration with the regional in-service training committee and adviser in Eastern Jutland.

The Long Term Training Courses: Idea and Action

The residential long term training courses named "One week in agricultural college" have their common focus on well defined areas in the farm enterprise and the job situation of the farmer. The idea is to establish coherence between the farmers daily work situation and the educational content and level of training.

Thus, it becomes highly important that the framework of the planning process is prepared in a way that allows for proper recognition and identification of the various in-service training needs of the farmers. The experience, so far, also seems to indicate that specific training aspects both in technical and more general areas, such as organisation, education, and personal development, preferably may be dealt with and integrated into the same training course sequences.

In that respect, the residential long term (5 days) training courses may form an excellent basis for meeting more thorough planning, development, and implementation requirements. Evidently, the long term training courses allow for additional resources to be used on planning work including the development of training techniques and material. Besides, the planning process involves a number of resource persons and, thus, makes it a source of inspiration, innovation, and information, to a large number of partly farmers and partly extension workers and others.

For practical or other reasons the training schedule may be divided into two more sessions, e.g. if participants after one session are asked to do some home work related to the situation on the farm enterprise, before they enter the next session.

Objectives and Target Groups

The continuing education courses for farmers are being developed in accordance with ongoing analysis and evaluation of training needs, wishes, specialisation, and other factors related to the job situations within specified target groups. Accordingly, the courses in relation to any target group may be divided into three different levels of training, namely: Basic, special, and advanced courses.

Basic courses are for participants with limited or no knowledge and skill within a certain subject matter area or field of work. The aim is to give participants a basic understanding of the area or field of work.

Special courses are for participants with all round knowledge and practical experience within a specific subject matter area. The aim is to give participants in depth training and to update their economic and technical knowledge and skills within a well defined area of specialisation.

Advanced courses are for participants with substantial knowledge and experience in farming, farm management and economics. The aim is to give participants personal development and leadership training and to update their concepts of management and information about economy and market trends within a given field of interest.

The use of different training levels in the planning process has proved to be of some value to the programme development work. Besides, it makes it easier for the individual farmer to choose between courses in accordance with his or her need for training. Within specific subject matter areas even more refined approaches are being used to build up course sequences at various training levels in a given order.

Thus, a special training programme for mohair producers based on four different training levels, has been developed in close cooperation with the Mohair Producers Association with the aim to have the training activity integrated into the advisory work organised by the association. As a result, the larger number of producer members do attend training in a recommended order.

Within farm management and economy the training programme, naturally, applies to a rather broad target group that makes it difficult to have an equally close connection between training and advisory activities. Although, planning within this subject matter area is done according to the different training levels, the huge course supply within various regions makes it rather complicated for the farmers to select courses in accordance with their need for individual training.

Use of Networks in the Planning Process

In order to currently adjust means and ends in ongoing programming work, representatives of the users are involved in both the over all and the more detailed planning process. Consequently, with respect to the set up and size of the actual target group, some more extensive networks have been developed involving representatives of various organisations, institutions, info-groups and others. These are as follows:

Advisory Centres and Agricultural Schools

Generally speaking, all the local farmers organisations maintain some training course activity for their members. Such activities, normally, are arranged by local advisory centres and consist of non-residential brush up courses of one to five days duration.

If in addition, the local organisation wishes to serve its members with some longer term in depth training courses, it is possible to make arrangements with the regional in-service training centre or adviser about the developing of specific residential training courses. Or the farmer members of the organisation may just be informed about their possibilities for sharing training programmes that take place in the training centre and the agricultural schools.

This kind of informal network between educational institutions and the farmers organisations and advisory centres promotes the integration of advisory and training activities in relation to the daily work situation of the farmer. Besides it may have some direct impact on programming work within both training and advisory centres.

Info-Groups

Inside the more important farm production areas (e.g. crop production, cattle, pig, and poultry production) groups of 8 - 10 farmers in a local area may meet regularly to exchange information and discuss matters of mutual interest. Such Info-groups often meets 8 - 10 times a year, and an agricultural adviser or subject matter specialist may eventually function as contact person for the group.

Members of an Info-group who wish to brush up their knowledge about specific topics may together with the regional training centre or adviser design some tailor made training course where also the level and content of training are decided in common. Most often Info-groups from two or three different geographical areas are represented in the course planning work and are subsequently joining the actual course.

In this way the individual farmer in a very direct manner gets involved in the planning and realisation of his/her own in-service training needs and wishes.

Producer Organisations and Associations

In close collaboration with various producer organisations and associations, e.g. The National Association of Milk Producers, The National Committee for Poultry and Eggs, The Association of Fruit Growers in Eastern Jutland, Koldkaergård Landboskole undertakes a wide variety of programme planning and training work.

In this kind of network planning ongoing training need analyses among producers, normally, are undertaken by the organisations themselves, i.e. facts about the present situation as well as both long term and short term needs for changes in production and economy patterns of the farm enterprise may be at hand already at an early stage of the planning process.

The proportions of and the way in which such important information is made available depends on the structure, size and economy of the single organisation.

Special Planning Committees

Five special planning committees have been set up by Koldkaergård Landboskole, one within each of the following subject matter areas:

- Crop Production.
- Cattle Husbandry.
- Pig Husbandry.
- Farm Economy and Accountancy.
- General Farm and Family Subjects.

The planning committee members represent local farmers and producer organisations, advisory services and agricultural schools, and may eventually include subject matter specialists from central agricultural research and advisory organisations. Committee members are selected by their own organisations.

Each planning committee, ordinarily, meets once a year in order to reach decisions and give priorities to programme plans and proposals within their special subject matter area. In preparation of the meeting, committee members are asked to provide information about the clarification of training needs among farmers within their local area. In addition, a number of individual collaborators and bodies provide important inputs, proposals and plans, to the ongoing programme planning process. In this connection the regional in-service training committee and adviser play an important role, as they continuously stay in close contact with local farmers, producers, organisations, advisory centres, agricultural schools and others.

The Planning Process

Diagram 2 in the back of this paper shows the applied planning process at Koldkaergård Landboskole. It is a progressive planning model by which training needs, ideas and proposals successively are taken into consideration in order to realise current objectives of the ongoing educational activity.

In this respect the six phases (step 1 - 13) below together may form the planning process of continuing education for farmers:

Phase 1 (step 1 - 2): Planning Tasks and Proposals.

The over all planning work that is taken care of by the above mentioned planning committees receive supplementary support from groups and associations of farmers, agricultural advisers, teachers and other resource and contact people. In this connection Koldkaergård Landboskole undertakes some preparatory and follow up planning tasks with a view to obtain continuity in programming and development work.

Phase 2 (step 3 - 8): Co-ordination and Approval of Plans.

The result of the planning work in phase 1, in the form of high priority programme plans and proposals, then are registered and submitted to the regional in-service training committee with the purpose to co-ordinate the total supply of long term training courses for farmers in Eastern Jutland (step 3).

Regular meetings between the regional in-service training centres and advisers, also make adjustments of plans between geographical areas possible in accordance with the expressed wishes and demands of the farmers in the five regions (step 4).

After final approval of the over all work plans by the board of directors for Koldkaergård Landboskole (step 5) a common written course catalogue is prepared and distributed by mail to all farmers in Eastern Jutland (step 6). Simultaneously, more detailed programme outlines are prepared and submitted for public support approval to the Ministry of Agriculture (step 7 - 8).

Phase 3 (step 9): Programme Design

The way in which programmes are designed and distributed depends to some extent on the type of training arrangement, i.e. whether it is an open course for all farmers or a more or less tailor made course for predetermined groups of farmers. For practical reasons, the planning process distinguishes between three types of training courses, namely:

* Open courses. Normally, title and contents have already been decided in one of the planning committees. The course conductor who may also be pointed out by the planning committee together with 4 - 5 resource persons representing both the potential users and instructors of a certain programme are doing the entire planning work, assisted by one of the training centre staff members.

* Order courses. These type of courses ordered by and prepared in collaboration with local or central organisations and associations meet special demands within limited and well defined target groups. They make it possible to develop coherent training related to the specific job situation of the farmer. Here, the course conductors and other resource persons may be selected by the organisations themselves.

* Info-Group courses. These courses involve participants directly in the programming work. Title and contents of the course are selected by the group members themselves, who in turn have a lot of responsibility for this highly participant activating type of training. Also in this context the course conductor is a key person in the planning process.

Phase 4 (step 10 - 11):Marketing and Announcements.

Naturally, the way in which programmes are designed influences the distribution and announcement work. Thus, info-group courses totally bypass these important steps of the planning process.

In general however, marketing and announcements work require a great deal of effort in order to reach the various target groups.

Thus, yearly course catalogues are prepared both at national and regional level and distributed directly to farmers. More detailed information about specific courses currently may be announced in farm magazines or distributed by mail, local advisory centres, and others.

Phase 5 (step 12): Programme Implementation.

At all stages of the planning process the course conductor is functioning as a resource person. In most training courses a farmer is the course conductor and this may help the participants to identify themselves in relation to the training aspects in the course and to draw out conclusions from the course program.

Special courses e.g. Personal Computer courses may have a specialist adviser or teacher as the course conductor who, in this respect, together with other instructors function as a specialist-team.

Phase 6 (step 13): Programme Evaluation.

The use of measures to evaluate the continuing education programmes may vary quite a lot, although the evaluation procedure does not include examinations or tests.

Generally speaking, the optimal measure for judgement of the continuing education programmes seems to be, whether the acquired knowledge and skills can be used at home resulting in some kind of improvements in the farm.

Programme evaluation, then, may be carried out in the following ways:

* End Evaluation.

Evaluation at the completion of a training course aims to measure the short term value of the educational activity. Eventually, as an exception, the long term effect also may be registered in terms of achieved improvements or changes in production techniques and other outcomes by the course participants.

* Mid-Way Evaluation

Evaluation of separate sessions or segments of ongoing training courses may include tasks or problems to be solved by participants between sessions. Results or achievements, then, are to be defended by individuals through presentation and discussion with instructors, course conductor, and the other participants in the next training session.

* Performance Evaluation

Continuous evaluation throughout a training course may aim to measure the performance of individual participants toward the realisation of some specified objectives for their own farm. During the course each of the participants may create a strategy plan including criteria or stated objectives for improvements within a specific area of farm production or the farm enterprise as a whole. At the end of the training course, the participants present and discuss their performances with the relevant resource persons at the training course.

* Follow up Evaluation

Follow up evaluation in the farm enterprise of the participant's achievements from a given training programme, occasionally, may be undertaken by agricultural advisers engaged by info-groups or others. The idea is to measure changes that are being made as a consequence of participation in the continuing education programme.

The above mentioned evaluation approaches are being selected and used depending on the type of training course in question. Thus, "end evaluation" has become the normal evaluation procedure for all courses. The other methods, then, may be applied as alternative or supplementary approaches to programme evaluation.

Summary and Implications for Future Programme Planning

Continuing education for farmers over the last few years has developed as an important and integral part of the Danish agricultural extension work.

The educational activity takes place either as residential courses - one week in agricultural college - or as non-residential courses of minimum 5 days duration arranged by local farmers unions or agricultural schools. I.e. 8 per cent of all Danish farmers participated in 1990 in some kind of educational activity.

An important basis for this development is found in the special in-service training act (Law Number 703) of 1982, and subsequent legal arrangements by the Ministry of Agriculture.

The continuing education activity for farmers is closely connected with the established agricultural advisory and school system. The actual course activity is planned and implemented by and in cooperation with local farmers unions, associations, and Info-groups, as well as agricultural schools.

The continuing education activity for farmers is organised within five regions each of which have at their disposal a training committee, a training adviser, and a centre for in-service training. At central level special planning and service functions are undertaken by the national training agency.

The major part of this paper deals with the planning process by which continuing education courses for farmers are prepared and implemented at the agricultural in-service training centre Koldkaergård Landboskole in the region of Eastern Jutland. Experiences, so far, seem to indicate that the centre benefits from the use of progressive long range approaches in the planning of the educational activity. This conclusion leads to several significant implications for the future planning work:

An important part of the planning work has to do with the use of an efficient programme planning design to insure that the ongoing programme continuously adapts itself to the farmers demands and wishes for in-service training. Thus, programme planning can be viewed as an instrument of leadership with the quality to identify and implement adequate changes in the programme planning and development work of the training centre.

The programme planning process involves current adjustment of the objectives for ongoing planning work in close collaboration with organisations and institutions which are engaged in and responsible for the activity in the training centre, including approval of the overall activity and economy. Practical experiences have demonstrated that when legitimization has been effectively obtained, significant progress is made in the total planning effort.

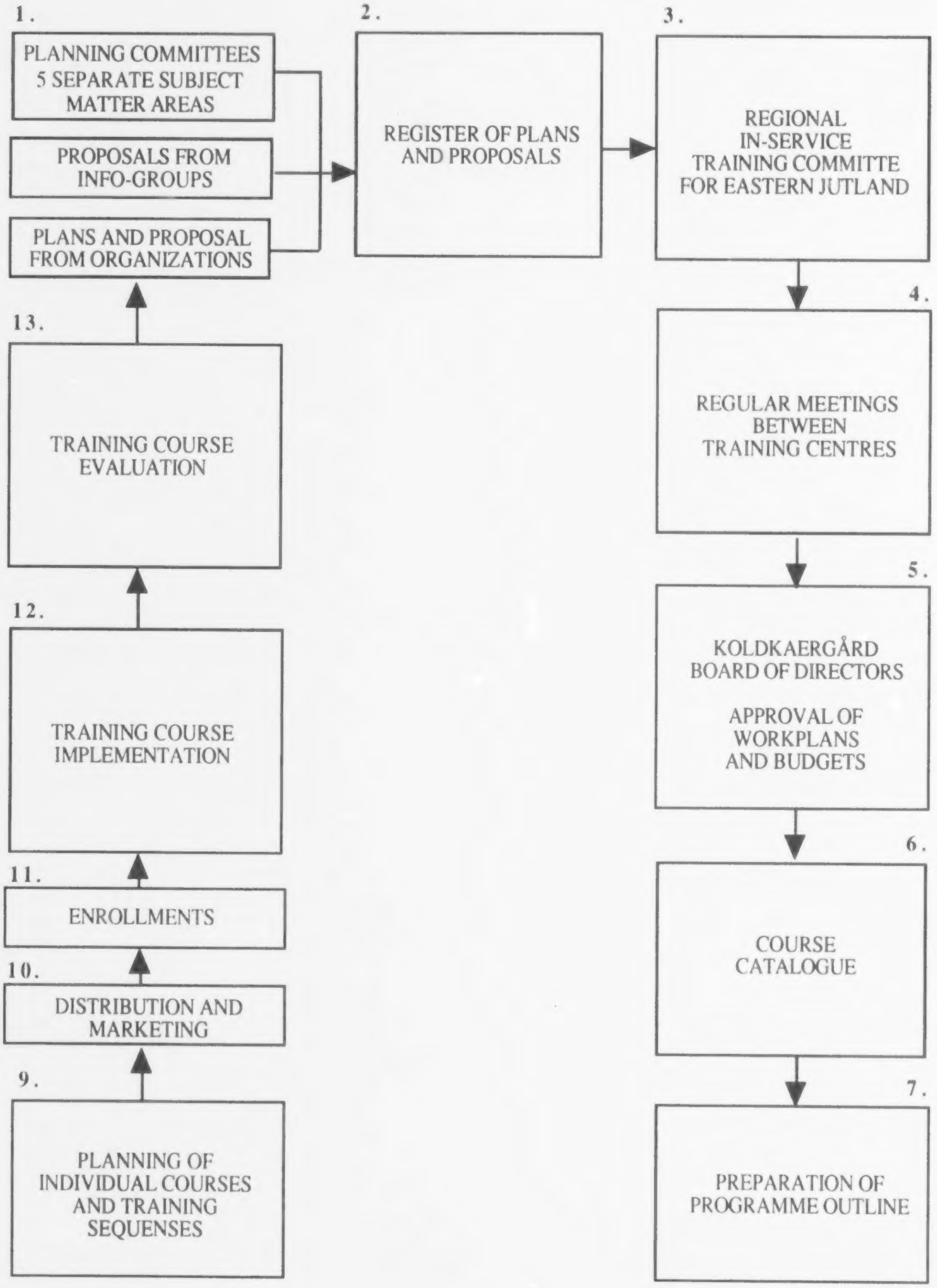
An over all design for the planning process divided into six phases has been developed by Koldkaergård Landboskole. Experiences, so far, show that the development and use of a detailed design of planning helps both the programme planners and their immediate partners, course conductors, instructors and other key persons to feel secure in the total programme planning and implementation work.

The programme planning process can be effective only if favourable relations are established with key individuals and representatives of various organisations engaged in agricultural and continuing education work. This requires development, cooperation and co-ordination in the planning effort among the programme planners and administration personnel of the regional in-service training centres in Denmark.

The use of programme planning in the continuing education work for farmers has proved its value as an instrument to obtain continuity and coherence in the ongoing planning and development work at Koldkaaergård Landboskole.

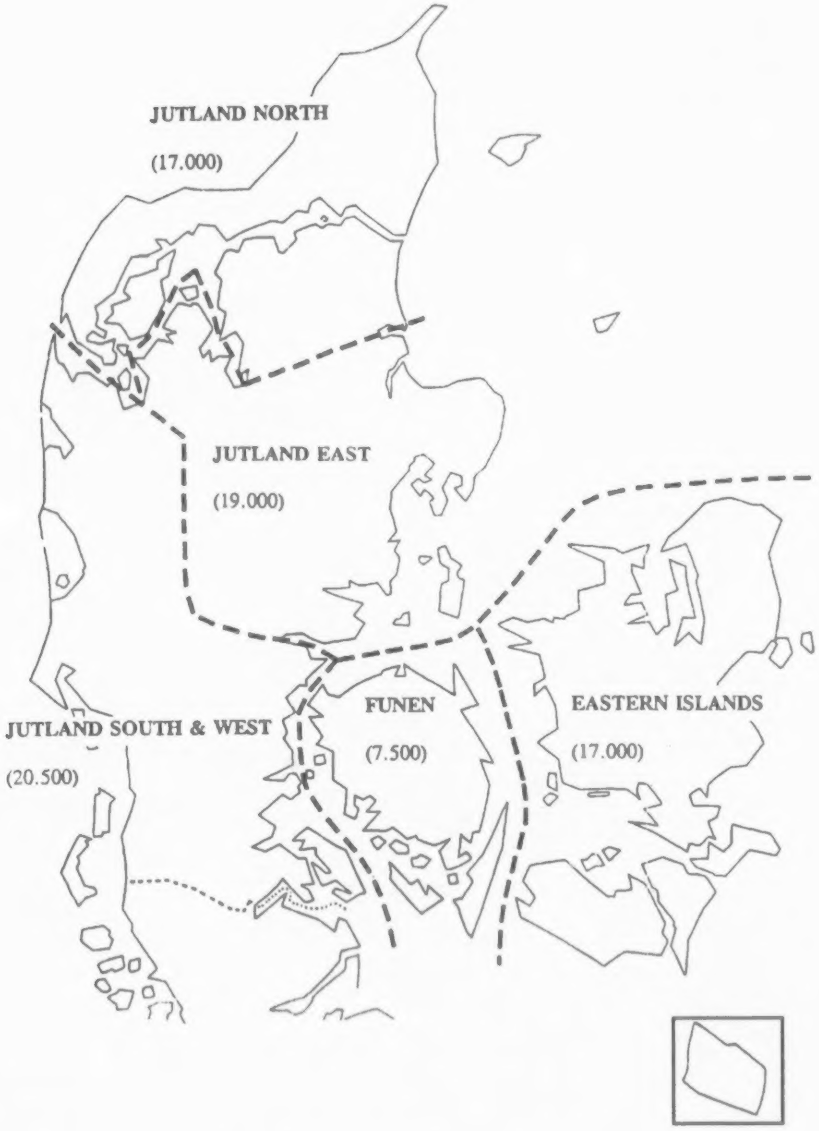
Besides, programme planning is an important instrument in the continuous planing and co-ordination work with the other in-service training centres and the national agency of continuing education for farmers.

Table 2: The planning process of continuing education for farmers


1.
PLANNING COMMITTEES 5 SEPARATE SUBJECT MATTER AREAS
PROPOSALS FROM INFO-GROUPS
PLANS AND PROPOSAL FROM ORGANIZATIONS
2.
REGISTER OF PLANS AND PROPOSALS
3.
REGIONAL IN-SERVICE TRAINING COMMITTE FOR EASTERN JUTLAND
4.
REGULAR MEETINGS BETWEEN TRAINING CENTRES
5.
KOLDKAERGÅRD BOARD OF DIRECTORS
APPROVAL OF WORKPLANS AND BUDGETS
6.
COURSE CATALOGUE
7.
PREPARATION OF PROGRAMME OUTLINE
9.
PLANNING OF INDIVIDUAL COURSES AND TRAINING SEQUENSES
10.
DISTRIBUTION AND MARKETING
11.
ENROLLMENTS
12.
TRAINING COURSE IMPLEMENTATION
13.
TRAINING COURSE EVALUATION

KURSUSINSTITUTIONEN KOLDKÆRGÅRD LANDBOSKOLE

Table 1: Farmers continuing Education in Denmark, Organisation based on 5 Region (number of farm holdings in brackets


JUTLAND NORTH
(17.000)
JUTLAND EAST
(19.000)
FUNEN
(7.500)
EASTERN ISLANDS
(17.000)
JUTLAND SOUTH & WEST
(20.500)

National Portuguese Survey: What Educational Competencies Are Rated Necessary for Extensionist by Directors of Agrarian Zones ?

Timothy L. Koehnen and José Portela

In this paper, the authors study the perceptions of a population of directors of extension at the local level of the Portuguese rural extension system. In order to visualise where the extension system fits overall, a brief description of the government organisation scheme will follow and the interrelationship. The program has evolved from a highly planned and organised system to one in which continental Portugal has been organised into seven regional planning and implementation organisations with relative autonomy for their region. The seven *Direcções Regionais* have within each a director/co-ordinator who is directly linked to the national Minister of Agriculture, Fishing and Food. The director in each region oversees the offices of regional agrarian planning, administration, staff and farmer training, rural extension, protection and production of animal and plants, agricultural marketing, rural infrastructure and other offices with specific functions. There is a sub-director responsible for rural extension in each region who has responsibility to administer and promote extension education through and with the Directors of Agrarian Zones. The agrarian zones are made up of *freguesias* and concelhos which are political government units within each region. The number of agrarian zones differs from region to region and are aggregated in relatively homogenous geopolitical/farming areas.

Population

The national descriptive study was aimed at Directors of Agrarian Zones in Portugal and has assisted in the identification and weighting of the functions and activities of extensionists involved in the development of the agricultural sector. The group that rated the competencies plays a role in communicating new ideas and technologies to the rural population. They also assist to communicate concerns and needs from the *freguesias* and *concelhos* to regional and national developmental agencies. The directors in this group are attempting to assist the rural population to increase their agricultural production and income and to improve the quality of life of the rural family. The daily tasks include the management and supervision of the work of their staff (rural extensionist, sanitation and animal health officers, and support staff), preparation of financial budgets, the planning and implementation of educational programs and campaigns, and the maintainance of positive relationships with other rural development agencies.

What are the characteristics of these Directors of Agrarian Zones? What are the competencies in extension administration, planning, and evaluation that were perceived as necessary by these directors of agrarian zones for an extensionist? What are the time constraints of these directors for carrying out administration/supervision, planning and evaluation of their rural development programs? The paper will present data to answer these questions.

Purpose of the Study

The purpose of the study was to identify necessary competencies through the responses by the Directors of Agrarian Zones within twelve competency categories, but in this paper the authors focus only on the areas of administration, planning, and evaluation. The rating by these administrators can serve as the basis for designing training programs and curriculum development programs for change agents within both rural extension and other development agencies. These administrators also estimated their time spent in Administration/Supervision, Program Evaluation, Program Planning, and other functions. Secondary attention will be given to the characteristics of the population of these administrators such as educational level, sex, age, and other biographical data.

More specifically, the paper describes the responses of Portuguese Directors of Agrarian Zones to the perceived necessity of 23 distinct individual competencies using a 4 point "likert scale". The information will be used to alert trainers to the necessary activities to be performed by extensionists. The identification of necessary competencies by the sample will assist in designing and reformulating educational and training programs. It can also serve to delineate the individual job description for an extensionist in Portugal. An assumption in the study is that the population of Portuguese administrators has both administrative and extension experience to rate the necessity of various competencies of an extensionist in the areas of administration, planning, and evaluation using a "likert scale".

The data has been summarised through descriptive statistics such as means, frequencies, and percentages. "Survey research is that branch of social scientific investigation that studies large and small populations (or universes) by selecting and studying samples chosen from a population to discover the relative incidence, distribution and interrelations of sociological and psychological variables (Kerlinger, p. 393, 1964)".

Methodology

The population for the study consisted of all Directors of Agrarian Zones in continental Portugal. The population is located in seven regions: *Entre Douro e Minho, Trás-os-Montes, Beira Litoral, Beira Interior, Ribatejo e Oeste, Alentejo,* and *Algarve*. The response rate for the study was 79% of the population of 64 administrators for 66 *Zonas Agrárias*, it occurred that two directors had to manage two agrarian zones (*Entre Douro e Minho e Beiro Interior*). This self-selected sample will be used to describe the responses from the 52 respondents.

The complete questionnaire was a) developed through a review of literature in rural development and extension which identified specific duties and tasks and also used competencies from similar survey research studies, b) translated from English to Portuguese, c) validated and field tested through Master's degree students at UTAD in Rural Development and Extension as well as proofed and edited by two Portuguese extension specialists d) mailed to the population of administrators and e) coded and the data inputted into a desk-top computer and the responses analysed by a statistical program.

The mail-out packet consisted of a letter of introduction, the questionnaire, and a self-addressed envelope with postage. The process included a follow-up reminder letter which was sent after four weeks to those who had not returned the questionnaire. After 9 weeks, the study had a 64% response rate. In order to determine if the group that had not responded was different in any way from the group which had responded to the mailout, a questionnaire was sent again to the non-responding group and an appeal was also made to their supervisors in the regional headquarters to request their participation. By this action, the study received an additional 10 questionnaires, which when analysed did not differ significantly from the group as a whole. The final response rate was 79% which was calculated by assuming that each administrator was distinct for the 66 *zonas agrárias*. The paper describes the responses to only 3 of the 12 competency categories. The other categories were: program execution, understanding human behaviour, socio-cultural aspects, teaching, communication, participation, farming systems, appropriate technology and young farmer organisations. The study is related to similar professional competency studies which came out of programs at the University of Florida, Pennsylvania State, University of Arizona and others.

Characteristics of Directors of Agrarian Zones

The participants in this study were Directors of Agrarian Zones in continental Portugal. What are the characteristics of this group who are administrators and extensionists. In the group that responded to the questionnaire (79% of the population), the study found, that nationally, 70% passed their infancy or adolescence in rural areas. The proportion of female Directors of Agrarian Zones was 23%. The average age of the group was 41 years. The educational level of the group of administrators was that 18% had achieved the *Bacharel* degree and 82% had achieved the equivalent to the *Ingénieur Agronome*. The group predominantly had their majors within the agricultural sciences, while one had a degree in rural sociology. The work experience of the group shows that 21% have 5 or less years of experience, while 79% have 6 or more years of work experience in extension. The average number of staff that are supervised by these zonal heads is 10. With this data, a calculation was made to determine the number of farms per extensionist in Portugal. The rough data indicate an approximate ratio of 1 extensionist to 900 farms. The number of farms was calculated from the 1979 farm census (INE).

Competencies of Change Agents

The paper will now move into the responses by these directors as to the need of various competencies within program planning, extension administration, and evaluation for rural extensionist. The frequencies and means to be presented can assist in the identification of knowledge and skills necessary to carry out the role as a change agent. The information obtained can also facilitate the process of identifying educational objectives for extension education curriculum and training programs for extensionist.

The responses of the Directors of Agrarian Zones were tabulated using a 4 point likert scale, with degree four coinciding with absolutely necessary, degree three necessary, degree two seldom necessary and degree one not necessary. Some directors refused to rate the competency and for this reason the total (N) varies from competency to competency.

Table 1 shows the responses to competencies involving the extension administration category. The responses show that the majority of directors rated the various competencies as necessary or absolutely necessary. However in competencies f and j, the data reflect that over 30% of the directors rated the competencies as seldom or not necessary. Competency f might reflect that directors perceive this role to be under their influence rather than a role for an extensionist. Also, the authors find it quite unbelievable that 30% of the Directors perceive computer skills to be seldom or not necessary in the age of the computer.

Table 1: National Proportional Responses by Directors of Agrarian Zones and Means on the Necessity of Competencies Associated with Extension Administration

EXTENSION ADMINISTRATION	PERCENTAGES					
	Degree of Necessity					
The extensionist should be able:	4	3	2	1	MEAN	N
a. to outline procedures for resolving conflicts and maintain staff morale.	50	40	6	4	**3.4**	50
b. to outline appropriate staff recruitment.	31	49	8	12	**3.0**	51
c. to select and supervise staff.	36	42	8	14	**3.0**	50
d. to conduct a needs assessment evaluation for project planning.	22	60	16	2	**3.0**	49
e. to outline conditions under which a project program may need to be adjusted.	27	67	6	0	**3.2**	51
f. to determine alternative strategies for overcoming the lack of political power on the part of project administrators.	16	48	20	16	**2.6**	50
g. to identify both the private and public institutions involved in the agricultural knowledge system, devoted to technology development, transfer, and utilisation of technology.	43	49	6	2	**3.4**	51
h. to revise programs when necessary to adjust to an emergency situation.	35	61	4	0	**3.3**	51
i. to collaborate in budget preparation and elaboration	16	62	14	8	**2.9**	51
j. to utilise micro computer for word processing and other functions.	13	57	20	10	**2.7**	51

Please see Table 2 which shows the responses to the competencies related to Program Planning in Portugal. The majority of directors perceived that the program planning competencies were necessary for an extensionist. However, competencies d and g were perceived by over 30% to 50% of the directors as seldom necessary or not necessary. They do not agree to the necessity of advisory councils or the historical and philosophical understanding of rural extension by the extension agent. In some respect, it might be necessary to sensitise these directors as to the important role the advisory council can play in identifying community problems and needs as well as in the process of legitimising the extension program.

Table 2: National Proportional Responses by Directors of Agrarian Zones and Means on the Necessity of Competencies Associated with Program Planning

PROGRAM PLANNING	PERCENTAGES					
	Degree of Necessity					
The extensionist should be able:	4	3	2	1	MEAN	N
a. to formulate realistic goals for the extension program.	76	20	4	0	**3.7**	51
b. to consider agricultural policy in preparing programs.	54	42	4	0	**2.9**	50
c. to conduct a needs assessment based on clientele needs, interests, and problems.	82	16	0	2	**3.8**	51
d. to organise and use an advisory committee	20	50	28	2	**2.9**	50
e. to prepare an annual and long range plan of work.	45	49	6	0	**3.4**	51
f. to develop a calendar of events.	69	31	0	0	**3.7**	51
g. to outline the history, philosophy, and objectives of the extension organisation in Portugal / region.	2	48	36	14	**2.4**	50

Table 3 shows that there is a high consistency in the response by these directors. The majority rate all the competencies within evaluation at least necessary for extensionists. One concern from the data deals with the directors´ perceptions concerning the necessity to interpret research results to the farmer. In competency d, 34% of the directors perceived this as seldom necessary for the role of the extensionist. This indicator normally is consider to be important (Swanson,1982) in the necessary institutional interfacing roles between research and extension. It might be important to question further the reason for not perceiving this as necessary by some zonal heads. The role of a research linker or communicator of research results to the producers has been acknowledged as important in the transfer of technology which is one aspect of extension. Are these directors concerned more with the role of an extensionist as a process facilitator rather than a agency linker? The literature points out that the extensionist needs to perform multi-roles in the rural extension agency.

Table 3: National Proportional Responses by Directors of Agrarian Zones and Means on the Necessity of Competencies Associated with Extension Evaluation

EVALUATION	PERCENTAGES					
	Degree of Necessity					
The extensionist should be able:	4	3	2	1	MEAN	N
a. to carry out inquiries to understand the needs of the clientele.	41	43	12	4	**3.2**	51
b. to interpret the impact of change upon the clientele served.	63	31	2	4	**3.5**	51
c. to use research findings when making recommendations to farmers.	67	31	2	0	**3.6**	51
d. to interpret and evaluate research findings reported by research institutions for extension clientele.	30	36	26	8	**2.9**	50
e. to evaluate the performance of the extension staff.	38	40	16	6	**3.1**	50
f. to use questionnaires to seek information.	18	53	25	4	**2.8**	51
g. to analyse and interpret results derived from a questionnaire.	31	49	14	6	**3.1**	51

Time Spent Performing Functions by the Directors of Agrarian Zones

What is the time necessary for Directors of Agrarian Zones to plan and execute the rural development programs? In Table 4, the reader can observe the average time Directors of Agrarian Zones spend performing tasks within administration/supervision, program planning, program evaluation and other functions (52 directors responded to this question). The data present the average time of all directors in performing these broad functions. In the analysis of the functions, the data verifies that these administrators spend over half their time in administration/supervision while devoting only 14% of their time to planning and evaluation. In contrast, the data show that they spend 30% of their time in functions outside of that of an administrator. It should be noted that the lack of time spent within planning and evaluation raises important issues and should be studied further. The cycle of planning and evaluation is weak for reasons that might be linked to a dependency situation with regional and national planning organisations.

Table 4: Estimates in Percentages by Directors of Agrarian Zones for Their Time Spent Performing Specific Functions

Functions	Percent of time devoted to Functions
Administration/Supervision	57
Program Planning	8
Program Evaluation	6
Field Demonstrations/Farm Visits	9
Teaching/Training	7
Non-Programmed Extension Activities	7
Other Activities	7

Conclusions

The purpose of the study was to identify professional competencies for an extensionist in Portugal. In this particular paper, the authors selected three major extension areas (administration, planning, and evaluation) to investigate. The selection was based upon the interest in obtaining a mini-profile for an extensionist, but also to show the reader a contradiction in our results between the perceptions of the Directors of Agrarian Zones and the time spent by directors performing these same functions.

On the whole, the respondents were quite uniform in their appraisal of the necessity for the professional competencies. This consistency in rating competencies as necessary or absolutely necessary should be seen as a positive first step in the curriculum development process. A cautionary note is based on two factors: 1) the data show that administrators spend only 14% of their time in program planning and evaluation, while consistently rating the pre-selected listing of competencies of the survey research instrument positively. These respondents rated competencies without an interactive interview process that did not allow for triangulation of the questionnaire with probing interviews which might change the results. 2) the alternative factor is that the administrative and policy structure allows for minimum time for these functions by Directors of Agrarian Zones. The respondent perceive the importance of the professional competencies, but has no time or there are time management constraints to perform these essential functions by the directors. These zonal heads might be constrained by regional or national policies that interfere in the actual time required for program planning and evaluation at the level of the agrarian zones.

The overall conclusions from this study is that the competencies can in some extent assist us to develop a profile for an extensionist in Portugal and the information can be utilised to develop training programs as well as analyse and adjust on-going educational programs in rural development and extension education within Portugal. The profile itself might serve to develop a national job description for entering extensionist in agrarian zones. An additional question needs to be determined and that is which competencies need to be attained and when by the extensionist to determine curriculum programs for their pre or in-service training.

We believe the study can be used to confirm the necessity to prepare multi-purpose extensionists who can perform as dynamic facilitators and educators in the rural development process. The study also has determined a profile for an extensionist position linked to the performance of an extensionist in the three areas. These educational and/or professional competencies that were identified as necessary can serve as a preliminary point for further discussion in the role of a non-formal educator in Portugal.

References

BAN A. W. V. D. e HAWKINS H. S., (1988) Agricultural extension. Essex, England: Longman Scientific & Technical.

BLACKBURN, D. J., (ed.), (1984) Extension handbook. Canada: University of Guelph.

BMZ, CTA, e GTZ, (1987) Manuels developpement rural. Vulgarisation agricole. Tome I. Bases theoriques et méthodes. Eschborn: GTZ.

BOYLE, P. G. e MULCAHY S., (no date). Take a giant step: A guide to major programs. Madison, Wisconsin: Division of Program and Staff Development, University of Wisconsin Extension.

BOYLE, P. G., (1981) Planning better programs. USA: McGraw-Hill Book Company.

CASLEY, D. J. e KUMAR K., (1987) Project monitoring and evaluation in agriculture. London: World Bank Publication.

CHIAVENATO, I., (1987) Administração, teoria, processo e prática. Lisboa: McGraw-Hill, Ltda.

FENERSTEIN, M. T., (1986) Partners in evaluation, evaluating development and community programmes with participants. Hong Kong: MacMillan Publishers.

FERNANDES, A. J., (1989) Portugal face à política regional da comunidade europeia. Lisboa: Publicações Dom Quixote.

HOYOIS, G., (1968) Sociologie rural. Paris: Editions Universitaires.

INE, (1979) Recenseamento agrícola. Lisboa: Instituto Nacional de Estatística.

ISAAC, S. e MICHAEL, W.B., (1985) Handbook in research and evaluation. San Diego: EDITS Publishers

JOHNSTON, B. F. e KILBY, P., (1974) The design and implementation of strategies for agricultural development. Agricultural Administration. I(3), p.165-197.

JOLLIVET, M., (1988) Pour une agriculture diversifiée. Paris: Éditions L'Harmattan.

JONES, G. E. e ROLLS, M., (1982) Progress in rural extension and community development . Toronto: John Wiley and Sons.

Kaimowitz, D., Snyder, M. and Engel, P., (1989) A conceptual framework for studying the links between agricultural research and technology transfer in developing countries. The Hague: ISNAR.

KELSEY, L. D. e HEARNE C. C., (1963) Trabajo de extension agricole. Mexico: Centro Regional de Ayuda Tecnica.

KERLINGER, F.N. (1964) Foundations of behavioral research. New York: Holt, Rhinehart, and Winston, Inc.

KINGSHOTTE, A., (1980) The organization and management of agricultural extension and farmer assistance. Agricultural Administration. 7(3), pp. 191-210.

LITTLE, I. M. D.e MIRRLEES, J. A., (1974) Project appraisal and planning for developing countries. Sydney: Gower.

LOPES, S. A., (1984) Desenvolvimento regional-problemática, teoria, modelos. Lisboa: Fundação Calouste Gulbenkian.

MAUNDER, H. A., (1973) Agricultural extension: A reference manual. Rome: Food and Agriculture Organization of the United Nations.

Ministério da Agricultura Florestas e Alimentação (1984) Os serviços de extensão rural nas zonas agrárias. Lisboa: Ministério da Agricultura Florestas e Alimentação.

MORIS, J., (1981) Managing induced rural development. Bloomington, Indiana: International Development Institute.

OAKLEY, P. e GARFORTH C., (1985) Manual de capacitación en actividades de extensión. Roma: Organizacion de las Naciones Unidas Para la Agricultura y la Alimentacion.

ONGONDO, W. N., (1985) The professional competencies needed by intermediate agricultural extension personnel in the Kenya agricultural extension service. (Doctoral dissertation. Pennnsylvania State University at Pennsylvania, 1984). Dissertation Abstracts International.

RAMSAY, J., FRIAS, H. e BELTRÀN L., (1975) Extension agricola dinamica del desarrollo rural. San José, Costa Rica: Instituto Interamericano de Ciencias Agricolas.

RIBEIRO, O., LANTENSACH, H. e ADAVEAU, S., (1989) Geografia de Portugal - III. O povo português. Lisboa: Editions João Sá da Costa.

RÖLING, N., (1988) Extension science: Information systems in agricultural development. London: Cambridge University Press.

RÖLING, N., (1989) Knowledge management and information technology: Brief of concepts and issues. Wageningen. The Netherlands: European Seminar on Knowledge Management and Information Technology.

SCHMIEL, A. A. e FAAS, R. C., (1975) A resarch approach to institutional alternatives in the administration of agrarian development programmes. Agricultural Administration. 2(4), pp. 285-365.

SIMS, H. e LEONARD, D., (1989) The political economy of the development and transfer of agricultural technologies. The Hague: ISNAR.

SWANSON, B. E., (1982) Analysing agricultural technology systems: A research report. Illinois: Office of International Agriculture, University of Illinois at Urbana-Champaign.

VARELA, J. A. S., (1987) A política agrícola comum e a agricultura portuguesa-a política de preços e de mercados. Lisboa: Publicações Dom Quixote.

Relevancy of U.K. Graduate Education to Malawian Agricultural Professionals Careers in Agricultural Development

Thomas F. Trail

Malawi is o small, landlocked, agrarian country located in east, Central Africa. Ninety percent of the population are engaged in subsistence and some cash crop farming. Government policy has supported agricultural development. In the early 1980's Malawi reached a stage of self sufficiency and even exported surplus maize to neighbouring countries. The National Development Plan has placed high priority on the graduate education of agricultural professionals who work with the Ministry of Agriculture (MOA) and at Bundo Agricultural College.

Since 1978 the United Kingdom has provided graduate education opportunities for about 70 Malawian agricultural professionals. These educational opportunities have been funded by the British Council/ODA. A number of students who completed their graduate work were funded through the World Bank. Graduate studies were pursued at such universities as Reading, the Royal Agricultural College, Imperial Agricultural University, Silsoe, Aberdeen, Edinburgh, and others.

The majority of the graduates returned to work with the MOA in the National Rural Development Plan. In 1985 under sponsorship of the World Bank manpower needs were identified for the MOA and a Five Year Training Plan Developed for the Ministry.

In 1990 the World Bank requested the services of Dr. Tom Trail of the Department of Adult and Youth Education at Washington State University to conduct a manpower study of academic relevance of Bank funded graduate programs in Malawi. The methodology utilised was similar to that developed by Dr. David Acker of Oregon State University in a similar study conducted in Tanzania of USAID funded participants. The Bank was interested in a research study to determine the relevance of U.K. graduate education in agriculture and home Economics to careers and to national development goals. Relevance was based on the perceptions of 57 Malawian agricultural participants who had completed their M.S. or Ph.D. degrees in the U.K. since 1978 under Bank or Council sponsorship. Relevancy in the study was defined as "the value as perceived by the individual graduate student in relationship to personal, career goals and to national development goals". The 57 respondents who participated in the study represented 84% of the participants.

Literature Review

Relevance is viewed as "the way in which knowledge can be adopted to the needs and conditions of the developing country, taking into account the goals of the developing country and the goals of the individual...(Jenkins, 1980, p. 7). Within this definition, the study emphasised the graduates' ability to adopt knowledge acquired in the U.K. graduate programs to their home countries' needs and conditions.

The literature suggested that the relevance of graduate education depends on a set of three contextual elements: 1) the individuals career goals, 2) the agricultural enterprise's technological sophistication, and 3) the nation's development goals and societal values.

From the literature, Acker identified and then clustered 7 major factors that predicted high relevance of education for agricultural development that predicted high relevance of education for agricultural development in developing nations. Education was assessed as highly relevant if it supported the professional 's career:

1. Training supported back home employment:
    a. Theory was applicable to practical problems at home.
    b. Methodological and analytical training were pertinent to the local environment, and
    c. Level of technology was appropriate
    d. Training was broad and flexible
    e. Appropriate placement and measurement of relevance were concurrent
2. Education tended to be highly relevant if it supported national development:
    a. Training was congruent with the society's needs.
    b Training was oriented toward that society's rural and agricultural development
    c. Training was focused on a job for the candidate relating to national development goals
    d Training was offered abroad (assumption that the country did not have training in the graduate areas)

Acker then identified seven content and process-oriented implications for improving educational relevance: The implications related to: 1) adopting graduate research, 2) emphasising practical training, 3) including management, administrative, and leadership development education, 4) focusing on project analysis and evaluation, adopting an international perspective within curricula, 6) exposing all students to dynamics of social change, and expanding student support services --extracurricular activities, complementary courses, pre-departure, and increased contact with home institutions.

Purpose

The objectives of this study were:

1. Identify participants' ability to adopt knowledge acquired in the U.K. to Malawi´s needs and conditions.
2. To identify the degree, if any, of personal and national relevance of the academic experience.
3. Describe development of the National Training Plan

Methodology

The subjects were 57 respondents from Malawi (1990) who 1) held citizenship of their respective countries, 2) had completed an agriculturally related M.Sc. or Ph.D. degree from a U.K. university, 3) had received financial support for their graduate program from the World Bank or Council, and 4) were residing in Malawi at the time of the study.

Data were collected through a written questionnaire. Dependent variables were respondents' perceived relevance of their U.S. graduate education for 1) the respondent's professional career and 2) the nation's agricultural development; 14 intervening, (demographic) variables and nine independent, (substantive) variables were defined.

Development of a National Manpower Development Plan

A National Manpower Development Plan for the MOA was developed in 1987. The plan was developed for more than 6,000 employees. The purpose of the study was two-fold: 1) to develop a plan that would meet the requirements of the Ministry and donors and serve as the basis for the five-year training plan, and 2) to identify a human resource training model that would allow for meaningful input and participation by first line supervisors and above. One of the major emphasis was to identify long term, off shore M.Sc. and Ph.D. requirements relating to national development goals.

The model which provided the framework for the study was that of L. Nadler. Nadler describes training as a process which is job oriented and can be analysed and developed through a deductive approach; that is, the use of an orderly process which involves the following steps: 1) develop job standards; 2) identify needs; 3) determine objectives; 4) develop curriculum; 5) select methods and materials; 6) obtain instructional resources; 7) conduct training, and 8) evaluation and feedback.

The Training Unit took leadership in the development of the plan. Over 200 mid level and top level managers were interviewed, and about 150 researchers and extension workers were surveyed in relation to long term training priorities and in relation to national development goals. Another outcome of the process was the development of short term, off shore and in-country training plans.

The modified Nadler model appeared to allow for participant input in developing a national plan. Developing job standards and identifying training needs assisted in setting long term manpower development requirements for the Ministry. Both MOA and donor representatives expressed satisfaction with the process. MOA, World Bank, and other donors were interested in determining the relevancy of the graduate training. The U.K. for example had invested over 7,000,000 pounds in training in Malawi since 1978 according to High Commissioner Dennis Osburne. Since evaluation was a component part of the Nadler model the study was focused on graduates from the U.K.

Results and Discussion

Two thirds of the participants reported that the U.K. academic experience was very relevant to their personal goals. This is reported in Table 1. Approximately 94 percent of the respondents indicated that the U.K. academic experience was very or somewhat relevant in relationship to personal goals.

Table l. Relevance of U. K. Academic Experience in Relation to Personal Goals

Level of Relevance	% Distribution
Very relevant	70
Somewhat relevant	24
Neither relevant nor irrelevant	2
Somewhat irrelevant	2
Very irrelevant	2

Another perspective is to look at the relevancy of the U.K. experience in relationship to respondents' career. This is reported in Table 2.

Table 2. Relevance of U.K. Graduate Education to Agriculturist Career

Area of Graduate Study	Mean	Rank
Research	4.22	1
Disciplinary	4 16	2/3
Project Analysis	4.16	2/3
Management	3.96	4
Social Change	3.70	5

1= low, 5 = high

In examining the data, it was apparent that the most relevant experiences for the Malawians were: disciplinary laboratory courses, training in laboratory equipment, personnel management, policy formulation, training of trainers, and project accounting. Part of this can be accounted for from the fact that about 85 percent of the participants come from research, and many upon returning to their posts will be in policy making and project administrative jobs.

There were some interesting observations as the MOA officers were asked to rate the relevance of the U.K. experience in relation to National Agricultural Development goals. There goals are outlined in the l0-Year National Development Plan and in the MOA NRDP V Plan of Work. These are reported in Table 3.

Table 3:

Social Science Degree Areas	Technical Degree Areas
Agricultural Economics	Plant Services
Agricultural Education	Animal Sciences
Extension Education	Entomology
Rural Sociology	Other scientific areas

The 57 respondents estimated the extent to Which their U.K. graduate education increased their abilities in 31 skills. These 31 task/process skills were divided into two groups; 18 identified as task oriented skills and 13 identified as process oriented skills. It was encouraging to see the high ratings that were made by graduate students from Malawi on the majority of skills. It is very significant to note that the U.K. graduate education increased their abilities in all areas It was found that when compared there were significant differences between social scientists and technical scientists on two of the 31 skills. Technical scientists had the ability to "help others plan work" and social scientists were able to help "groups feel empowered". These results are shown in Tables 4 and 5.

Table 4. U.K. Training's Contribution to Task-Oriented Skills

Task-Oriented Skills	Social Science N=17	Technical Majors N=40	Combined N=57	Signf. .05
Present info to group	4.52	4.57	4.54	.83
Write clearly	4.43	4.65	4.53	.31
See possibilities	4.23	4.32	4.31	.68
Reinforce values	4.23	4.40	4.29	.50
Get accurate info from people	3.94	4.00	4.00	.82
Use problem solving strategies	4.17	4.02	4.07	.56
Plan work	4.41	4.52	4.47	.62
Help others plan	3.94	4.40	4.24	.05*
Assess needs	4.41	4.50	4.47	64
Prioritised job goals and tasks	3.62	4.12	4.03	.26
Set objectives	4.29	4.17	4.18	.61
Evaluate progress	4.23	4.35	4.30	49
Conduct meetings	4.17	4.07	4.10	.73
Organise job tasks	3.88	4.17	4.03	.34
Locate resources	3.58	3.80	3.73	.46
Utilise available resources	4.00	4.30	4.17	.23
Assess results	4.23	4.30	4.28	.78
Develop and monitor budgets	3.47	3.97	3.69	.25
Overall Average	4.10	4.25	4.20	

*Significant at .05
1=low ,5 =high

Table 5. U.K. Training Contribution to Process Oriented Skills

Process Oriented Skills	Social Science Majors N=17	Technical Science Majors N=40	Combined N=57	Signf .05
Interact one-to-one	4.64	4.35	4.44	.14
Facilitate group discussion	4.17	3.92	4.12	.34
Motivate individuals	4.41	4 12	4.21	.28
Motivate groups	4.17	4.05	4.05	.6
Understand people's learning styles	4 00	3.67	3.67	.28
Model desired behavior	3.62	3.37	3.43	.47
Help groups feel empowered	4.05	3.28	3.54	.03
Help others see their skills, abilities, and potential	4.12	4.00	4.04	.68
Learn as a self directed learner	4.47	4.55	4.53	.68
Help other solve problems	4.11	4.15	4.23	.89
Influence others	3.70	3.80	3.78	.72
Work with supervisor	3.94	4.12	3.98	.48
Work with subordinates	4.2 9	3.97	4 07	.39
Overall Average	4.14	3.98	3.97	

*Significant at .05 level

Again, it is very significant to note that respondents reported that the U.K. graduate experience increased both their task and process skills. This applied to both the social science and technical science group. The significant difference between the two groups occurred when technical scientists indicated they had the ability to "help others plan work", and the social scientists were able to help "groups feel empowered". In Malawi technical scientists with M.Sc. and Ph.D. degrees generally supervise project work units. These individuals indicated that the U.K. academic experience helped prepare them to do this task more so than the social scientists. The social scientists on the other hand are the MOA professionals working with rural leaders and populations developing rural development programs and leadership skills. It is not surprising to note a significance in this category between the two groups.

Summary

The study clearly demonstrates that Malawian participants in U.K. graduate programs indicated a relative high degree of relevancy of the experience in terms of both the relationship to personal/career and national objective goals. This study also indicates that both social science majors and technical science majors reported positive gains in task and process oriented skills. These skills are of great importance and enhance their academic training since the participants return to their country as managers and leaders.

As educational institutions respond to increasing pressures to better prepare students from Malawi and other countries, results of studies like this one become increasingly valuable. With scarce resources available, institutions need to learn from the successes and failures of others in order to develop programs that are more effective and efficient to meet Third World needs. Also greater emphasis needs to be directed toward in-country research and practical training that can be applied in the home country.

There is a great deal of data still to be analysed from the study. A more comprehensive Research Monograph is now being written by the researchers, and a series of recommendations will be outlined in the report.

References

ACKER, D. (1988). Relevance of U.S. graduate education in agriculture to careers in agricultural development of East African agriculturists. Oregon State University.

Impact Study of the Technical Co-Operation Training Programme for Malawi. Prepared by the British Council for British Development Division, Southern Africa, 1990.

JENKINS, H. (1980). A report of the fourth AID/NAFSA workshop: The relevance of U.S. education to students from developing countries. Washington: National Association for

FOREIGN Student Affairs.

LONG, J., JIMMERSON, R., and TRAIL, T "Relevance of U.S. graduate education to Malawian agricultural professionals' careers in agricultural Development", Paper presented at the Association for International Agricultural and Extension Education, St. Louis, MO. March 28-30, 1991.

LONG, J., ACKER, D, JIMMERSON, R., and TRAIL, T., "Relevance of U.S. graduate education for agricultural development in Malawi and Tanzania: A Comparative Study", Paper presented at the Association for International Agriculture and Extension Education, St. Louis, MO March 28-30, 1991.

TRAIL, T., "Development of a national manpower plan for the Malawi Ministry of Agriculture", Paper presented at Lifelong Learning Research Conference, University of Maryland, College Park, MD. February 20, 1988.

TRAIL, T., Relevancy of U.K. graduate training of Malawian agriculturalists", Paper presented at World Bank Seminar, Lilongwe, Malawi, September 5, 1990.

Designing and Implementing a Portuguese Master's Degree Program: A Luso-American Connection

Timothy L. Koehnen and Artur Cristóvão

The Universidade de Trás-os-Montes e Alto Douro (UTAD) has initiated the first Master's Degree in Rural Development and Extension Education in Portugal. The design and implementation of the master's degree has taken place within a university which had been described until quite recently as a Polytechnic Agricultural Institute with many faculty members working toward a doctorate. The recent institutional building involved various established institutions and foreign government donors. After the preliminary institutional building process the undergraduate programs were established. At the implementation stage of the master's degree, the University still had no graduate program with coursework and courses for thesis preparation to assist in backstopping the new program. In addition to the lack of an on-going graduate program within the concept of a European or North American Graduate College, the university had inadequate library materials and computer facilities for graduate research which parallels the disparity of the region in which the university has developed. At the proposal stage of the master's degree program, the department in which it is housed had one Ph.D. faculty member with a degree in Adult and Continuing Education and one other faculty member quite close to receiving a doctorate in Rural Sociology.

The design and implementation of a new degree program within a relatively new University required more time and financial resources to get the program established and fine tuned than is the case, for example, when a program falls within an institutionalised graduate college with adequate library and computer facilities, etc. In this type of implementation process, one cannot piggyback on non-existing infrastructure. Therefore, additional financial resources were required for educational infrastructure (educational and library materials), capital expenditure for equipment (computers, copier, office equipment) and transport as well as the hiring of a long and short term staff. It was also necessary that a line item for the training of faculty members to a Master and Ph.D. level be considered for educational program continuity in the future i.e. replacement of expatriate teaching staff. These factors were considered within a proposal developed and approved through a joint-venture between a funding agency, Luso-American Development Foundation (FLAD) and the UTAD.

The authors believe the grant provided partial funding to reduce the constraints in implementing a degree program in a newly functioning university. The FLAD, a newly created institution in Portugal, assisted to defray some of these costs for the implementation of a degree program at UTAD. The FLAD has some innovative characteristics, the major financial source for the foundation are part of a donor assistance package to Portugal. The foundation funds are invested in projects(to ensure the survival and longevity of the foundation) and development related projects like the Master's Degree in Rural Development and Extension Education at UTAD.

A tangent offshoot for further thought is that this type of foundation can be a prototype or model for future development programs in less developed nations. The foundation model allows for a more active participation of the host country in the development process within their own zone of influence. Also, the host country professionals can be a part of a supervised experienced career entry program by working with and alongside experienced donor staff placed in the foundation in the early stages of operations. We would suggest that donor and host government (i.e. the foundation) need to collaborate in a partnership mode to layout relevant development policy and strategy. After donor assistance ends, the foundation survivability is strengthened with a continuous agenda for other development projects through the auspices of country personnel.

FLAD Project: Educational Program and Courses

Let's take a look at the specific case in which funding from FLAD has institutionalised an educational program. The project will be described and its impact from the UTAD´s and students´ perspective. The educational program from the beginning attempted to facilitate participation of the students who have professional backgrounds in extension or training. In order to establish a positive educational climate, the program diverged dramatically from past short course extension training programs sponsored by the Portuguese Ministry of Agriculture, Fisheries and Food. These programs usually offered a pre-established methodology or extension strategy which was considered, *the way*, to resolve extension agents problems. The Master's Degree attempted to offer a participatory dialogue with the students about various alternatives without establishing a "fixed" solution to the professional change agent's problems. The dialogue and discussion resulted in students playing a greater role in determining their own philosophy and belief concerning the appropriate extension strategy for their local programs.

During the start-up phase of the degree program, the courses were primarily taught by three UTAD faculty with additional assistance from short and long term quest professors from Portuguese and European Universities such as Évora University, University of Reading, University College of Swansea, Wageningen Agricultural University and others. The UTAD also has an important Luso-American component through contacts with faculty from various land-grant institutions in the United States such as Illinois, Wisconsin, and Arizona. These contacts to external institutions have broadened student contacts and improved the educational curriculum.

The interactive educational curriculum consists of three academic semesters in which students participate in the following courses: Extension Educational Methods, Economic and Social Factors in Development, Philosophy and Strategies in Extension, Agricultural Knowledge and Technology, Program Planning, Program Evaluation, Extension Supervision and Administration, Communication and Development, and Research and Statistics Seminar (research modules). Eight courses are taught during the first and second semesters and the third semester involves the research and statistics seminar. The third and fourth semester is more intensive for a one-on-one interaction and trouble shooting at the students research site.

The emphasis for the research is action oriented to assist in the identification and resolution of rural development problems for the region. The research seminar has been modified and developed into three modules. There is a module for each of the three academic semesters with greater emphasis in the third semester. The process has been established in this way so the students begin early to formulate their research problem with an academic advisor. In this way, the student is nudged into the identification of a the research problem early. Students that identify a problem early can begin to articulate their coursework assignments to the general problem they wish to study for their thesis investigation.

The student advisor also plays a role to encourage the student in the problem formulation. The assignment of the advisor has been established to encourage and assist the student during the early stages of the definition of the research problem and to counsel students in their educational program. Please note, the advisor is not necessarily the choice of the student for final thesis orientation.

Design and Implementation Issues

The implementation of the Master's Degree in Rural Extension and Development has been proposed and instituted to assist in the in-service training and development of professional change agents. These workers ultimately hope to improve the social and economic conditions of the rural population. They also work to sensitise the rural population to participate in the development of their communities. In order to assist these change agents in their goals, the master's degree has been designed with these professionals in mind. The FLAD grant included dislocation funds for these professional to attend classes during the two days they are away from their homes. The employer usually covers the tuition costs. These funds are an important component to students in a part-time program.

The master's degree program was established on a part-time basis to encourage the participation of these non-formal, formal and extension education professionals as was the case in other educational programs such as in Israel (Blum, 1986). The existing and future strategy for the program will continue to focus on professionals and establish an educational schedule convenient for their participation. The courses during the three academic semesters are scheduled on Thursdays and Fridays with some sessions on Saturdays to involve students in field trips and fieldwork. For example, students are given the opportunity to carry out diagnostic/assessment techniques to evaluate the impact of agricultural technology introduced to producers in the agricultural sector by development agencies. The Saturday field trips are preceded by class discussions, group teaching activities and role-playing for example of the interview process prior to the fieldwork. One necessary criterion for these hands-on programs is transport to allow greater accessibility to the field and contact with the potential users and non-users of a technology in their community. In this situation, an important element for the educational program is transport availability so students can carry out these community assessments. Project funds were utilised to buy transport vehicles for the university for these types of projects. The funding allowed the degree program to have access to a motor pool with the necessary transport.

In order to accommodate these working professionals who come from agricultural extension agencies, polytechnic agricultural institutes, farmer training centres, and other rural development organisations, the class schedule as has been explained was concentrated within a two day period which attributed to an additional positive aspect to the program. The class schedule facilitated a dynamic interaction of these rural development professionals. The professional interaction within the group occurs not only in the formal setting but during the informal contacts at supper and late night discussions. The initial contacts in the classroom has provided for both a loosely organised network between these professionals and an ideal teaching-learning environment.

These students have also given the university an educational and institutional program link to development oriented regional organisations. The degree program has strengthened an inter-institutional communication network through the graduates of the program.

Presently, all graduate candidates are employed professionals, but the future candidates might be a mix of seasoned professionals and non-experienced candidates. The non-experienced candidates could benefit from the student to student relationship in and out of the classroom. The interactive educational dialogue between students has rewards for both experienced and non-experienced students according to Blum, (1986).

The paper will discuss three additional aspects (library materials acquisition, the formation of advisory council, and program evaluation) which played an important role in the establishment of the educational program. Each of these points will be taken-up in the remaining part of the paper.

Library Materials Acquisition

One of the crucial aspects in the implementation of the degree program was library materials acquisition. An essential component in the teaching-learning process for any educational program requires that the students have access to the available literature and instructional materials (Heynemen et al., 1978). The areas in which the UTAD library lacked instructional materials was in adult education, non-formal education, youth, young farmer, and women's organisations, farmer's associations or co-operatives, rural and community development, participatory development approaches in extension education, indigenous knowledge systems, farming systems research, planning and evaluation of out-of-school educational programs, administration and supervision of non-formal educational programs, economic and sociological aspects of development, communication and development, research and extension linkages, and social science research. In order to resolve the inadequacies, the team sought to increase the number of materials through both purchases and other alternative acquisitions. These are some of the key questions that were addressed toward the improvement of the learning centre for the graduate students.

> What might be additional financial assistance for library acquisitions besides the funds from FLAD?
>
> How can we integrate the college-wide filing system for books and periodicals into the learning centre?

How soon can we hire a person Friday for the fiscalizaiton of library material as well as interrelated activities for the master's degree program?

What are the constraints to the university personnel office in the hiring of a full-time librarian to oversee acquisition, supervision, and management of university wide library and lend assistance to Master's Degree learning centre?

How do we link in some way to the proliferation of information being generated throughout the world?

How do we link to the information (bibliographies , indexes, and abstracts) identifying the primary publications?

What additional moneys are available for linking to data banks (Commonwealth Agricultural Bureaux (CAB) or ERIC Clearinghouses)?

To address these questions and to improve the learning centre, a major financial source involved the use of the FLAD funds for the purchase of texts and materials within the area of extension and rural development. However, the program staff felt there was a potential for receiving other key materials free. Therefore, early effort was spent in identifying institutions and non-profit development organisation and other universities which could contribute newsletters, discussion papers, teaching materials, and seminar proceedings in the broad area of rural extension and development. The strategy proved to be quite successful and many times a letter sent to institutions brought the above type of materials to the learning centre. These materials added to the number of quality items in the learning centre.

All these publications and educational materials in the learning centre have been documented and inputted into a desk-top computer program to facilitate record keeping and access to graduate students. The program has a key word function which simplifies the link to author and title of the appropriate references the student is searching.

Advisory Council

As a part of the holistic process in the development of the master's degree, the start-up of an advisory council was an important ingredient in the implementation of the Master's Degree. Advisory councils, according to Boyle, (1981) have several possible functions.

"to collect and analyse data for problem identification

to identify problems, needs, or resources

to study identified problems and make decisions on priority problems

to legitimise the program decisions made by the programmer

to identify alternative problems or need solutions

to create awareness among other people of the priority problems" (Boyle, 1981, page 121)

The Master's Degree advisory council serves to assist in improving and legitimising the educational program for the northern region of Portugal. The council assisted in establishing graduate program policy, marketing the educational program, course content adjustment and confirmation, prioritisation of activities and other functions. The members or elements of the advisory council came from Polytechnic Institutes, Agricultural Research, Agricultural Extension, and Community Development Organisations.

After the completion of the third semester for the first group of master's degree students, the students selected a fellow graduate student to represent them on the advisory committee. This has allowed students to communicate concerns and issues at council meetings while ensuring a voice at the advisory council. The participatory process is a significant ingredient in any new educational program. However, this essential ingredient at the university level is often not associated with established curricula programs. From the experience at UTAD, the advisory council concept can play an important role for any educational or research program.

Program Evaluation

How does evaluation, monitoring, and reassessment contribute to the general structure and programming successes? The need for educational program evaluation and monitoring can be justified for a new program such as this one but also for established educational programs. These types of evaluations should be considered in all on-going programs in order to improve the student-teaching learning process. The students in the program through the reassessment process can participate in the improvement of their educational program byway of their feedback and the feedback of power actors in the process.

What is the additional justification of program evaluation according to Patton, "Program evaluation is the systematic collection of information about the activities, characteristics, and outcomes of programs for use by specific people to reduce uncertainties, improve effectiveness, and make decisions with regard to what those programs are doing and affecting. This definition of evaluation emphasises (1) the systematic collection of information about (2) a broad range of topics (3) for use by specific people (4) for a variety of purposes. This broad definition focuses on gathering data that are meant to be, and actually are, used for prógram improvement and decision making"(Patton, p.14).

In our case, the evaluation activities were an on-going process by the course organisers and included one on one contacts with students during the first semester to appraise the situation. However, as a student project in one of the first semester courses, some students utilised their group project to evaluate and assess the first semester courses with their colleagues in the course. The initiative allowed the students to give the program designers feedback about the educational program (the campus professors were invited to the session). The exercise proved to be the highlight of the semester for many of the students. This session and other assessment activities served to communicate their interests and concerns for the program.

Through this exercise and other activities in the implementation of the program, the staff monitored the program to make needed formative adjustments. In addition to in-house evaluations, the grant allowed for an external consultant to evaluate the program for possible additional program adjustment. This had been built into the project in order to improve our final product (the students educational program). An external review can serve to identify possible problems and constraints for the program overlooked by the program staff. In our case for example, a suggestion was made to develop research modules for each of the three semesters in order to prevent a delay by the student in the start-up of the individual research project. This has been integrated into our program with the second group of degree students.

Formative and summative evaluations should be a part of all established educational programs. A possible stagnation of an educational program is the lack of educational adjustments to fit the real life situation of students or professionals. We believe in order to avoid mediocrity, educators should not look on evaluation as criticisms of their program by an overly aggressive auditor from the Internal Revenue Service, but a user friendly computer which enhances the user potential and facilitates the exchange of ideas. Unfortunately, many evaluators approach the task as an audit of the accomplishments without considering the process for the developmental and evolutionary program improvement.

Summary

The paper has identified components and the essential ingredients in designing and implementing a Master's Degree in Rural Development and Extension Education outside the context of a program that can piggyback on the European and North American Graduate College models. The implementation of the Master's Degree in a new university has been an exciting venture for both faculty and students. In the final analysis to quote one of the students in the program after an interactive review session, "who learned more during the last year, the students or the faculty?". The answer as it relates to the implementation of an educational program would be without a doubt the UTAD faculty team.

References

BLUM, A. (1986) Theory into practice - a case-study of postgraduate agricultural extension training. Training for Agriculture and Rural Development 1985. pp. 105-116.

BOYLE, Partrick (1981) Planning Better Programs. New York: McGraw-Hill Book Company.

HEYNEMEN, S., FARRELL, J., SEPULVEDA-STRIAIDO, M. (1978) Textbooks and achievement: What we know. Washington D.C.:World Bank

PATTON, Michael, (1986) Utilization-Focused Evaluation. London : Sage Publications, Inc.

Appendix 1: List of Participants

ANDRADE, Inácio
Secção de Extensão Rural
Universidade de Évora
7000 Évora
PORTUGAL

ANDROULIDAKIS, Stavros
Technological Educational Institute
P.O.Box 14561541 01 Thessaloniki
GREECE

BAPTISTA, Alberto
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

BEMBRIDGE, T.J.
University of Fort Hare
Private Bag X1314
Alice, Ciskei
REPUBLIC OF SOUTH AFRICA
Fax 0404 - 31730

BLUM, Abraham
Faculty of Agriculture
H. University of Jerusalem
P.O.Box 12, Rehovot 76100
ISRAEL

BOUET, Kjeld
Kursusinstitutionen Koldkaergard
Lanboskoleudkaersvej 10DK-8200
Arhus N
DENMARK
Tel. 86160055

CASINHA, Rosário
Secção de Extensão Rural
Universidade de Évora
7000 Évora
PORTUGAL

CRISTOVÃO, Artur
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

CRUNKILTON, John R.
226 War Memorial Hall
College of Education
Virginia Tech
Blacksburg VA 24061-0317
USA
Tel. (703) 321-6426

DINIZ, Francisco
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

DUNN, A. M.
Charles Sturt University, Riverina
P.O.Box 588,
Wagga Wagga, NSW2650
AUSTRALIA
Fax 069.222639

FENSEN, Christian S.F.
UDK/ERSVEJ 15, SKEJBY
8200 Arhus
DENMARK
Tel. 86109011
Fax 86109022

FIGUEIRA, Eduardo
Secção de Extensão Rural
Universidade de Évora
7000 Évora
PORTUGAL

GOUIS, Michel le
anda
25-27, avenue de villiers
75017 Paris
FRANCE
Tel. 47-66-55-50

HASSANULLAH, M.
Team-CIDA House 6/9,
Block Flalmatia,
Dhaka-1207
BANGLADESH
Fax 813401

HEYMANN, Fanny
Dep. of Extension Science
Agricultural University of Wageningen
Hollandseweg 16706 KN Wageningen
HOLLAND
Fax +31 0837084763

HOFFMANN, Volker
Universität Hannover
Institut für Gartenbauökonomie Abt.
Kommunikationslehere des Gartenbaues
Herrenhäuser Strabe
23000 Hannover 21
GERMANY

HOG, Kirsten
Kursusinstitutionen Koldkaergård
Lanboskoleudkaersvej 10
DK-8200 Århus N
DENMARK
Tel. 86160055

JEELOF, W.
1e Panwelandstraat
207413 ZA Deventer
HOLLAND

JIGGINS, Janice
De Dellen 4
6673 MD Andelst
THE NETHERLANDS

KNIGT, Lena
University of Helsink
Department of Extension Education
00710 Helsink
FINLAND

KOEHNEN, Timothy
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

KUZMA, Józef
WSP - Pedagogical Academy in
Krakówul Podchorozich 2
POLAND

LINDENBERG, Arjan
Waarden 383831
HD Leusden
HOLLAND

LINT, Jan E. M.
M.A.N.M.F.
Department of Anable Farming and
Horticulture
P.O.Box 204012500 EK
The Hague
HOLLAND

LUDWIG, Barbara
The University of Ohio
1680 Madison Ave.
OARDC, Adm. Bldg. Wooster
OH 44691
USA

LEMERY, Bruno
Ministere de L'Agriculture
E.N.S.S.A.A.
Chaire de Sciences Sociales &
Developpement
26, Bd Dr Petitjean
21100 Dijon
FRANCE
Tel. (80) 665412

MADUREIRA, Lívia
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

MARKEY, Anne
Dept. of Agribusiness
Extension of Rural Development
University College Dublin
Dublin 4
IRELAND
Tel. 693244
Fax 837328

MENDES, José Manuel O.
Universidade dos Açores
Dep. de Ciências Agrárias
Terra Chã
Angra do Heroismo
PORTUGAL
Tel. 31111/2/3
Fax (095) 32605

NIELSEN, Niels F.
Kursusinstitutionen Koldkaergård
Lanboskoleudkaersvej 10
DK-8200 Århus N
DENMARK
Tel. 86160055

NITSCH, Ulrich
Swedish University of Agricultural Sciences
Dept. of Extension of Education
P.O.Box 7013S-75007 Uppsala
SWEDEN
Tel. (018) 4618671000
Fax 4618301553

OKTAY, E.
The University of Ege
Agricultural Research and Extension Center
Ziraat Fakultesi C Blok 3 kat
35100 Bornova - IZMIR
TURKEY
Tel. (51) 390600
Fax (90) (51) 189513

ÖZKAIA, Tayfun
The University of Ege
Agricultural Research and Extension Center
Ziraat Fakultesi C Blok 3 kat
35100 Bornova - IZMIR
TURKEY
Tel. (51) 390600
Fax (90) (51) 189513

PHELAN, J.F.
Dept. of Agribusiness
Extension of Rural Deveopment
University College Dublin
Dublin 4
IRELAND
Tel. 693244
Fax 837328

PINHO, Ezequiel de Almeida
Direcção Regional de Agricultura do Algarve
Apt. 282 - Patacão
8000 Faro
PORTUGAL
Tel. (089) 816011/12/48
Tlx. 56580
Fax 816003

PIRES, António
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

POETA, Alexandre
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

POETA, Isolina
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

PORTELA, José
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

PROOST, Jet
Dep. OF Extension Science
Agricultural University of Wageningen
Hollandseweg 16706 KN Wageningen
HOLLAND
Fax +31 0837084763

PUERTA, Fernando S. de
Molinos Alta, 12 - 3º esq.
14001 Córdoba
SPAIN

REBELO, Vasco
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

RÖLING, Niels
Agricultural University of Wageningen
Hollandseweg 1
6706 KN Wageningen
HOLLAND

ROTH, Hans
Swiss Technical College of Agriculture
CH-3052 Zollikofen
SWITZERLAND

SALAS, María
UNI Hohenheim (430)
P.O.Box 700562
7000 Stuttgart 70
GERMANY

SIARDOS, George C.
19, Sarantaporou Str.
54640 Thessaloniki
GREECE

STADSTUEN, Solveig S.
University of Agriculture
Department of Economic and Social
Sciences Semsveien
164, N-1370 Asker
NORWAY
Tel. (02) 782460
Fax (02) 900252

SUNCIC, Franc
Biotehniska Fakulteta Agronomija
YU-61000 Ljubljana
Jamnikarjeva 101
YUGOSLAVIA
Fax 38-61-261073 ou 38-61-262974

THAGENEN, Fens
UDK/ERSVEJ 15, SKEJBY
8200 Arhus
DENMARK
Tel. 86109011
Fax 86109022

TIBÉRIO, Manuel Luís
UTAD - Av. Almeida Lucena, 1
5000 Vila Real
PORTUGAL
Tel. 322545
Fax 74480

TILLMAN, Hermann
UNI Hohenheim (430)
P.O.Box 700562
7000 Stuttgart 70
GERMANY

TRAIL, Thomas
313 Hulbert Hall
Washington State University
Pullman WA, 99163
USA
Fax 509-335-9642

VELSANG, Lambert
N.D. Hagenshaatt 6356717 DPEDE
HOLLAND

VISSER, Maike J.T.
Zonstraut 393971 VD Dribergen
HOLLAND

VAN WOERKUM, Cees
Dep. of Extension Science
Agricltural University of Wageningen
Hollandseweg 16706 KN Wageningen
HOLLAND
Fax +31 0837084763

WAGEMANS, Mathieu
Belenbroeklaan 22
6093 BT Heythuysen
HOLLAND

WIMS, Pádraig
Dept. of Agribusiness
Extension of Rural Development
University College Dublin
Dublin 4
IRELAND
Tel. 693244
Fax 837328

YOUMANS, David
Washington State University
West 601 First Av.
Spokane, WA 99204-0399
USA
Fax 509.456.2866

ZANNIER, Sabrina
anda
25-27, avenue de villiers
75017 Paris
FRANCE
Tel. 47-66-55-50

Appendix 2: Programme

10th European Seminar on Extension Education

New Focuses in European Extension Education
September 1-8, 1991

Universidade de Trás-os-Montes e Alto Douro, Vila Real

Sunday, September 1

Registration at the Residência de Codeçais, 16:00 - 22:00 (There will be a booth, if necessary, available for registration on Monday as well).

Monday, September 2

8:00 Breakfast
9:00 Introduction; Artur Cristovão
Opening Remarks: Rector of UTAD
10:00 Coffee Break

Session 1 - Global Issues

10:20 The Field of Extension Education: To Broaden the Scope by *C.M.J. van Woerkum*, Netherlands
10:40 Agricultural Extension: Trends and Perspectives by *George C. Siardos*, Greece
11:00 Perceptions of Sustainable Agriculture by *Ulrich Nitsch*, Sweden
11:20 Agricultural Knowledge Systems and their Geographical Distribution: A Comparative Approach by *Abraham Blum*, Israel
11:40 New Challenges for Extensionists: Targeting Complex Problems and Issues by Anthony M. Dunn
12:00 Discussion
12:45 Lunch

Session 2 - Strategies and Methods

14:30 Ideal Types and Real Systems of Extension in Europe by *Fernando Sánchez de Puerta*, Spain

14:50 New Initiatives of Agricultural Extension Education in the Central Europe as Exemplified on Poland by *Jósef Kuzma*, Poland
15:10 Low Farm Incomes in the Republic of Ireland and their Implications for Extension and Research by *J. F. Phelan* and *A. P. Markey*, Ireland
15:30 Coffee Break
15:50 Extension Service and Rural Development in Slovenia by *Franc Suncic*, Yugoslavia
16:10 Organizational Properties: Manifestation of Different Models of Extension Work by *M. Hassanullah*, Bangladesh
16:30 Agricultural Development and Modes of Professionalization of Extension Work: Some Reflections about the French Case by *Bruno Lemery*, France
16:50 Extension in Support of Agricultural Trade: Implication for Europe 1992 by David Youmans
17:00 Discussion
17:45 Departure for Dinner (Casa do Douro, Régua)

Tuesday, September 3

Session 3 - Strategies and Methods

9:00 Reaching Difficult Groups: A Dialogue Model by *Fanny Heymann*, Netherlands
9:20 Farmers' Study Clubs in the Netherlands by *Jet Proost*, Netherlands
9:40 Diffusion of Maize Growing Practices: Implications for Research and Extension by *T. J. Bembridge*, South Africa
10:00 Extension and the Picture: Conclusions from a Semiotic Theory of Picture Communication by *Volker Hoffman*, Germany
10:20 Extension Alternative to TOT and the Agricultural Knowledge Perspective by Maria A. Salas and Hermann J. Tillmann
10:40 Coffee Break
11:00 Group Work (session 2 and 3)
12:30 Lunch
14:00 Group Work Reports and Discussion

Session 4 - Planning and Evaluation

15:00 Strategic Planning for Extension Systems by *Barbara Ludwig*, U.S.A.
15:20 Developing, Conducting, and Evaluating a Training Program for Professional Extension Educators by *John Crunkilton*, U.S.A.
15:40 Coffee Break

16:00 Farmers' Training in Portugal: A Contribution to Its Evaluation by Artur Cristovão and Eduardo Figueira, Portugal

16:20 Rural Extension in Algarve, Southern Portugal: An Evaluation Case Study by Eduardo Figueira, Anabela Ferreira and Artur Cristovão, Portugal

16:40 Monitoring in Rural Extension: Data Gathering and Timing for the Portuguese Situation by Inácio Rebelo de Andrade, Portugal

17:00 The Effectiveness of Extension Services in Turkey by Tayfun Özkaya

17:20 Discussion

18:00 Departure to visit Vila Real and Dinner at the Câmara Municipal

Wednesday, September 4

Session 5 - Training and Curriculum Development

9:00 The Planning Process of Continuing Education for Farmers by *Kirsten Høg* and *Kjeld Bouet*, Denmark

9:20 National Portuguese Survey: What Educational Competencies are Rated Necessary for Extensionist by Directors of Agrarian Zones? by *Timothy Koehnen* and *José Portela*, Portugal

9:40 Relevance of U.K. Graduate Education to Malawian Agricultural Professionals Careers in Agricultural Development by *Thomas F. Trail*, U.S.A.

10:00 Coffee Break

10:20 Designing and Implementing a Portuguese Master's Degree Program: A Luso-American Connection by *Timothy Koehnen* e *Artur Cristovão*, Portugal

10:40 Group Work

12:00 Sum up through Plenary Session

12:45 Lunch

Session 6 - Planing the 11th ESEE: The issues, the themes, the place

14:30 Introductory remarks

15:00 Group Work

16:30 Conclusions in Plenary Session and Seminar Evaluation

17:45 End of Sessions

19:30 Departure for Dinner (Restaurante Quinta da Petisqueira)

Appendix 3: Excursion

10th European Seminar on Extension Education

Thursday, September 5

9:00 Departure from Vila Real
10:00 Visit to the Farmer Training Center at Vidago
11:30 Coffee Break at Palace Hotel, Vidago
12:30 Lunch at the Training Center
15:00 Project LEDA: Regional Development Perspectives
16:30 Departure for Bragança
18:30 Arrival at Bragança
20:00 Dinner

Friday, September 6

8:30 Departure to visit Escola Superior Agrária de Bragança (Polytechnic Institute)
10:00 Departure to visit Natural Park of Montezinho
13:00 Lunch at Gimonde
14:30 Departure for Mirandela
16:00 Overview of Social Action Process in Community Development: Agricultural Development Programme of Terra Quente (PDAR)
17:30 Departure for Vila Real
19:00 Arrival at Vila Real
20:00 Dinner

Saturday, September 7

9:00 Departure to visit the Douro Wine Region
10:30 Visit to the Quinta de S. Luiz and "Porto de Honra"
12:30 Arrival at the Quinta de Sta. Maria (Régua)
13:00 Lunch at the Quinta
15:30 Departure for Vila Real
20:00 Seminar Banquet (Hotel Miracorgo)

Appendix 4: Supporting Institutions

The following institutions supported, in one way or another, the organization of the 10th ESEE.

Agência de Desenvolvimento do Alto Tâmega (ADRAT)

Associação para o Desenvolvimento da Viticultura Duriense (ADVID)

Casa do Douro

Câmara Municipal de Chaves

Câmara Municipal de Vila Real

Centro Cultural Regional de Vila Real

Correios e Telecomunicações de Portugal (CTT)

Direcção Regional de Agricultura de Trás-os-Montes (DRATM)

Escola Superior Agrária de Bragança (ESAB)

Governo Civil de Bragança

Hotel Miracorgo

Livraria Branco

Parque Natural do Alvão

Parque Natural de Montezinho

Região de Turismo da Serra do Marão

Serviços Sociais da UTAD

União de Bancos Portugueses (UBP)

Universidade de Trás-os-Montes e Alto Douro (UTAD)

SCIENTIA ET LABORE OMNIA ADIPISCERE

Universidade de Trás-os-Montes e Alto Douro
Vila Real — Portugal

BEST COPY AVAILABLE